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the Industry

NEWS

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Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Cuties of the Week
Air Conditioning Is Legal
Good Cheer for Everyone
Slogan of the Year
Hooray for Their Side
He's Against Sin

Stories of the Week

Sourfaced boss smiled slightly
at his salesmen.

"Gentlemen," he grunted,
"I've assembled you to announce
a sales contest which I personally
will supervise."

"What does the winner get,
sir?" piped up a new lad.

"He gets," and the boss smiled
half-an-inch wider, "to keep his
job."

"At our time of life," sighed
a middle-age buddy, "the problem
isn't to resist temptation,
but to find it."

Cuties of the Week

Along the Eastern seaboard
Amoco gas stations are proclaiming
that their gasoline
doesn't need Ethyl (lead) additives.

Bill Sheehan, American Standard
advertising manager, suggests
a slogan:

"Get the lead out of your gas."

"Leafing through *Field & Stream*
in a doctor's office" (contributes
Dale Mericle) "I was startled
by an advertisement extolling
a new boon for mankind. Fastidious
dog owners now can tidy their
grounds with a long-handled device."

"Name of the gadget, so help
me, is Sooper Dooper Pooper
Scoop."

In its preoccupation with conformity,
the world may be guilty of locking
up its geniuses and ennobling its
mediocrities. Repressions on the
individual are necessary for the
safety of the person and of society,
but care must be taken that man
is not, as Dr. Lindner puts it,
"cured of his humanity." —
Changing Times.

Air Conditioning Is Legal

Is air conditioning a necessity?
An Arkansas court has ruled
that it is.

Upon learning that a courthouse
was to be air conditioned,
a citizen protested.

"We taxpayers will have to pay
for the air conditioning," he
complained in a lawsuit. "The
law authorizes expenditures for
telephones, heating, sewers,
water, and light in courthouses
because they're necessary. It
says nothing about (Concluded
on Page 14, Col. 1)

ASHAE Adopts New Air Conditioning Definition, Discusses Standards, Codes

By C. Dale Mericle

WASHINGTON, D. C.—Two symposiums—on residential air conditioning and standards and codes—plus 14 technical papers covering various aspects of air conditioning and heating provided a full schedule for the American Society of Heating and Air-Conditioning Engineers during its semi-annual meeting at the Shoreham here June 18 to 20.

Five speakers at the residential symposium outlined present methods of achieving year-round

Detailed accounts of the symposiums and many of the technical papers presented at the ASHAE semi-annual meeting will appear in future issues of **AIR CONDITIONING & REFRIGERATION NEWS.**

air conditioning and took a good look at future possibilities of electronic, solar, and nuclear systems.

What standards and codes are and should be and whether this society should become more active in this field was debated in the other symposium by six speakers.

With the exception of an-

nouncing a new definition of "air conditioning," which had been adopted by the ASHAE Council just prior to the meeting, the society conducted little business of immediate interest. According to John W. James, president, the society now says:

"Air conditioning is the process of treating air so as to control its temperature, humidity, cleanliness, and distribution to meet the requirements of the conditioned space."

Some revised thinking about partial load operation of cooling systems was urged at the Residential symposium by Warren H. Scott of Minneapolis-Honeywell, who served as project manager at Austin Village for the National Warm Air Heating & Air Conditioning Association.

Under partial load ("which occurs most of the time") the residential system will maintain better control over both dry-bulb temperature and relative humidity with short cycles, Scott said present research indicates.

"Three cycles per hour, that is, 10 minutes on and 10 minutes off, are desirable at partial load," Scott declared.

(Concluded on Page 4, Col. 4)

Mitchell Offers 3 New Models

CHICAGO—The 1957 "Advance Series" of room air conditioners is now being introduced at a series of meetings and is currently being shipped by the Mitchell Mfg. Co. here.

The new line consists of three models offering four features not previously available on the company's air conditioners.

The new models are M 157 with ¾-hp. capacity, 115 volts; M 1575, a 7½ amp., ¾-hp. unit; and M 1057 with 1-hp. capacity, 230 volts.

New features are:

1. A "power pack" chassis (Concluded on Page 29, Col. 2)

1-of-10 Centrally Cooled Homes Is Located In Texas

TYLER, Texas—One out of every 10 centrally air conditioned homes in the nation is in the state of Texas, with the total expected to increase by nearly one-third by the end of this year.

This was revealed here recently by William Bynum, president of Carrier Corp., in connection with ceremonies marking the turning on of the new air conditioning system in the local furnace and air conditioning manufacturing plant of the Bryant Div. of Carrier.

The Tyler plant, which produces central residential air conditioning equipment as one (Concluded on Back Page, Col. 1)

York Stockholders Ok Borg-Warner Merger

YORK, Pa.—Merger of York Corp. with Borg-Warner Corp. was approved by York stockholders at a special meeting last week.

Shareholders also approved changing the name of York Corp. to Lauer Corp. to complete the liquidation of the company. Rights to York's name also were purchased by Borg-Warner.

About three quarters of the outstanding stock voted for the merger, with less than 5% dissenting.

York shareholders will receive one-half share of Borg-Warner common and \$2 in cash for each share of York common. Borg-Warner will assume assets and liabilities of York as of July 1.

No Steel Shortage Seen, But Materials' Price Hike Expected

DETROIT—A steel strike, if it comes this weekend while this issue of the NEWS is on its way to you, probably would not affect the air conditioning and refrigeration industry greatly in terms of having products available (unless the strike is of extremely long duration).

But the whole steel situation is considered as certain to lead to increased costs in materials and components, and eventually to increased prices of the industry's products.

There are rumors that factory prices of electric motors (Concluded on Page 29, Col. 3)

Lehman Heads Frigidaire as Roberts Retires

DAYTON—Mason M. Roberts, General Motors vice president and head of Frigidaire Div., has



H. F. Lehman

been elected to retire and is being succeeded by Herman F. Lehman, general sales manager of Frigidaire, as head of the division.

Harlow H. Curtice, president of General Motors, said that Roberts' retirement and Lehman's appointment as general manager of Frigidaire are effective July 1.

Roberts is terminating 44 years of service with General Motors and 31 years with the Frigidaire Div.

Lehman, the newly-appointed general manager, has been with Frigidaire 31 years.

In 1928 he joined Frigidaire Div. as service manager, a position he held until 1932 when he was named commercial sales (Concluded on Page 29, Col. 5)

UsAirco Moves To Jordon Plant In Philadelphia

PHILADELPHIA — United States Air Conditioning Corp. has moved its main offices and plant from Minneapolis to Philadelphia, effective July 2, it is announced by David E. Feinberg, president.

The Philadelphia operations have been established in the plant acquired by UsAirco in January when it purchased the Jordon Refrigerator Co., Inc., which is now a subsidiary.

With the transfer of headquarters, UsAirco has closed the Minneapolis plant which it has occupied since 1946 and which it sold last year.

Manufacture of the company's air conditioning products at the Philadelphia plant has been under way for several weeks. A (Concluded on Page 29, Col. 1)

12 Amp., 1 Hp. Unit Ready For '57 Lines

Special Compressor, Motor Operate Unit on 115 V. Separate Line

DETROIT—The 12 amp., 1-hp. window-type room air conditioner is now on the scene, although if you went out to buy one today, it is very unlikely that you could find one.

It's quite possible that some of the 12 amp., 1-hp. window units will show up in dealer stores within a few weeks. It's more than likely that models of this type will be in a number of 1957 lines.

Fedders-Quigan Corp. last week announced the "design and development of a new 1-hp. room unit which operates on the normal 115-volt line find in most homes and commercial establishments and draws no more than 12 amperes." The new 1-hp. unit is scheduled for fall production as an addition to the line.

Declaring that its operating cost could be "25% less than that of the conventional 1-hp. 208-230-volt unit," Salvatore Giordano, Fedders-Quigan president, said he anticipated that the new unit will contribute as importantly to Fedders' 1957 sales as the 7½ amp., ¾-hp. model is contributing to current volume.

(Concluded on Back Page, Col. 2)

NAPC Opposes 1 Contract For Mechanical Work, Bid Shopping Ban on U.S. Jobs

MILWAUKEE—In two actions, members of the National Association of Plumbing Contractors attending the group's 74th annual convention here:

1. Voted down a resolution urging that plumbing and heating contractors ask architects, engineers, and building owners to award one instead of several contracts for all mechanical work in a building.

2. Refused to give official support to an organization which has been lobbying for Federal legislation to reduce (Concluded on Page 2, Col. 5)

BEHIND PAGE ONE . . .

Air-Cooled Condensers

Their Growth, Problems, Advantages, and Design
Discussed at ASRE Air Conditioning Conference. . . 6

Freezer Door Is Firm's Front Door

Storage Capacity Dramatized by Unique Gimmick 13

Servicing Motors (4)

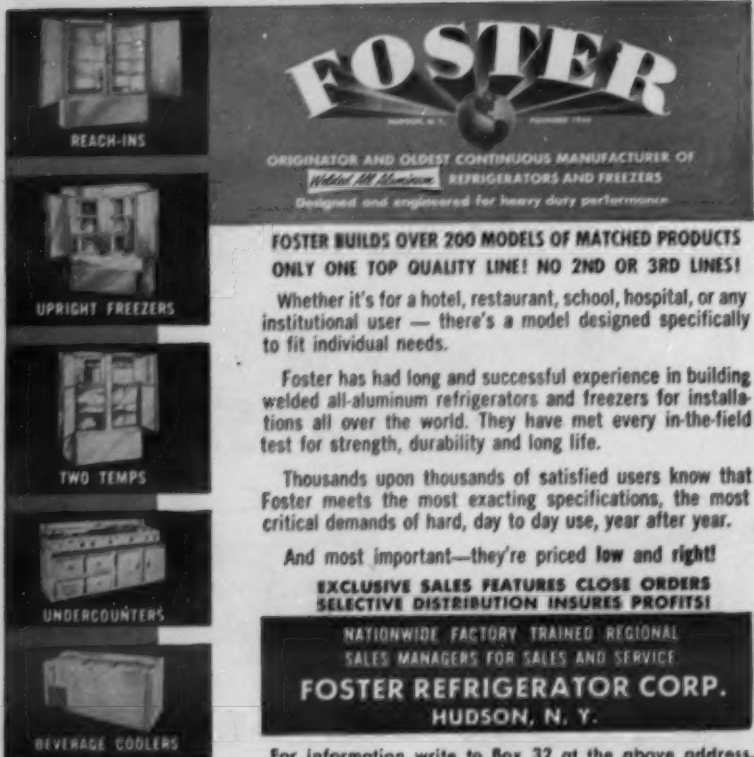
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Plant and/or Office Vacations

Manufacturers List Summer
Shutdowns, Shipping Plans. 25

Regular Features

What's New 22 Refrigeration Problems. 26
Patents. 30 Government Contracts. 30



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On Hermetically Sealed Units

Chicago's Pressure Relief Requirement
In Effect NOW Except for Window Units

CHICAGO — The ruling requiring overpressure relief devices on hermetically sealed refrigeration systems powered by a motor or power unit larger than 1 hp. is in effect now, it was emphasized last week by Gerald Gearon, supervising mechanical engineer, City of Chicago Department for the Inspection of Steam Boilers, Unfired Pressure Vessels, and Cooling Plants.

The only exemption granted this year has been on window model air conditioners using hermetically sealed units up to and including 2 hp.

Gearon said that there had apparently been some misinterpretation of his statement, published in the May 14, 1956, issue

of the News which said:

"After Jan. 1, 1957, all systems employing a hermetically sealed compressor assembly, the shell or casing of which cannot withstand a pressure, equivalent to that generated by a fire, without overcoming the elastic limits of the shell or casing, will have to have some positive means of overpressure relief device on the system."

This was correct as far as it went, because no exceptions will be made after Jan. 1, 1957 except where it will be demonstrated that the shell or casing will withstand the specified pressure. However, the story did not make clear that the ruling, with the window cooler exceptions, was currently in effect.

NAPC Meeting - -

(Concluded from Page 1)

bid shopping among subcontractors on government projects.

However, contractors individually said they favored the anti-bid-shopping legislation, it was reported.

Arguing against the "one-contract" resolution, New York City and Chicago contractors said such an arrangement would permit unlicensed plumbers to enter their field. A contractor from Ohio pointed out that combined mechanical contracts are illegal in his state.

Some air conditioning equipment was shown at the national plumbing and heating exposition held concurrent with the four-day convention. But the equipment was rather scarce and pretty much in the background.

William A. Landers, Oklahoma City plumbing and heating contractor who was elevated from vice president to president of the association, told reporters that the nation's plumbers are now offering a plan designed to take up the slack in new home construction which is occurring in many parts of the country.

"We are promoting the idea of having the plumbing contractor offer a package deal for remodeling your bathroom, kitchen, or heating plant," Landers said.

SMI Nears End of Study
On Proper Wrapping
For Self-Serve Meats

CHICAGO — The Super Market Institute's engineering study of the most efficient methods of wrapping self-service meat packages is nearing completion, Curt Kornblau, director of research, told the board of directors of the National Live Stock and Meat Board at a recent meeting here.

The meat packaging study, he said, is part of SMI's efforts to step up meat productivity, promised to "make a significant contribution not only to retailers but to everyone concerned with production and distribution of meat."

Kornblau, pinch-hitting for Henry J. Eavey, SMI's first vice president and representative on the NLSMB, reaffirmed Super Market Institute's basic belief in the need for all-out help by retailers to agricultural interests in moving surpluses.

SMI was now concentrating on the meat department, he told the board, because that department produces 25½% of all sales. Self-service meats are still relatively new, he said, and operators face many production problems in that department.

Purchase Control
Of Universal Cooler

MONTREAL, Que., Can. — Controlling interest in Universal Cooler, manufacturer of electric refrigeration equipment, has been purchased by Masters, Smith & Co., Ltd. from Maxwell, Ltd., it is announced here. Of the 100,000 shares outstanding, 98,900 have been acquired.

Sales and profits of Universal Cooler in 1956 are running about even with 1955, which was one of the best in its 30-year history.

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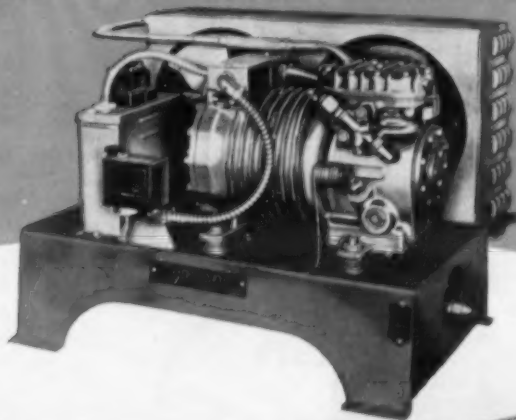
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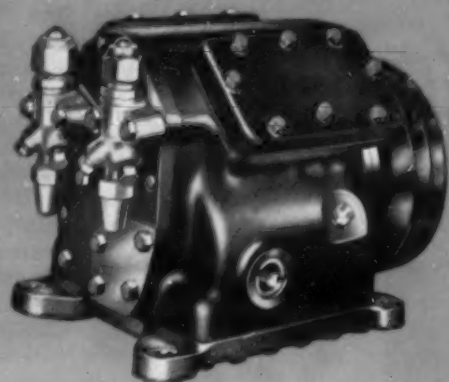
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Kirsch Shareholders Plan To Sell Stock

WASHINGTON, D. C. — A statement filed with the Securities & Exchange Commission revealed that a group of Kirsch Co. stockholders plans to sell 120,000 shares of the Sturgis, Mich. firm's \$5 par common stock.

Net sales of the company from July 1, 1955 to April 28, 1956 totaled \$24,609,130 and net profits amounted to \$1,525,340, according to a consolidated earnings summary. Kirsch estimated that its heat exchanger unit division accounted for about 15% of its sales during that period.

For the period from July 1, 1954 to April 30, 1955, the company reported net sales of \$19,623,402, and a net profit of \$1,493,614.

ASHAE Covers Conditioning, Codes--

(Continued from Page 1)

Although admitting there is some rise in humidity with such a short cycle, Scott pointed out that longer cycles permit a wide fluctuation of dry-bulb temperature.

The almost complete dominance of "fuel-electric" systems for year-round residential air conditioning will continue for the next several years at least, believes W. E. Wood, manager of the Development Dept., Unitary Equipment Div., Carrier Corp.

The conventional system employing gas or oil for heating and an electric condensing unit for cooling represents better than 96% of present sales, Wood said. Even with the 1960 predicted sales of 540,000 units, all-electric systems such as the heat pump won't get more than

3½%, and all-fuel systems such as absorption or gas engine-powered compressor units won't top 1% of the 1960 market, Wood predicts.

Despite the expected and present growth of residential air conditioning, the market is far from saturated, he also pointed out. According to Wood, it now stands at 1.6% and by 1960 will be up to only 6.3%, based on present trends.

A good future for "fuel-operated" year-round systems was predicted, however, by A. B. Newton, vice president, design and research, the Coleman Co., Inc., who emphasized that gas utilities as well as LP gas producers and distributors are striving to increase their summer loads through the development and expansion of gas-powered systems.

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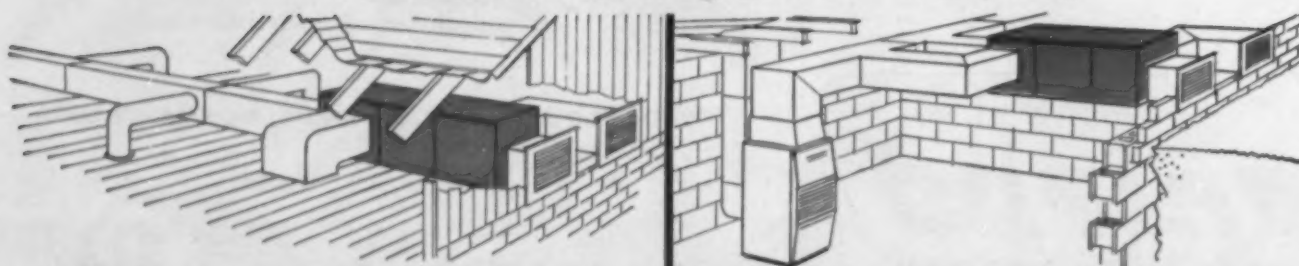
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IN ATTIC INSTALLATIONS—For homes with wet heat, base-mentless homes, etc. Unit sits on rafters close to outside wall, with intake and exhaust vents to outside. Main line duct down center branches off to individual rooms.

IN BASEMENTS AND CRAWL SPACES—Unit is hung from beams or joists or can sit on floor... is tapped into duct system with only negligible ductwork revision. Short air intake and exhaust to outside wall. Includes cooling blower.

Internal Combustion Engine Driving Compressor Seen As Practical Gas Cooling

Various methods of obtaining cooling with gas were mentioned by Newton, but "the most immediate practical possibilities" seem to lie in the internal combustion motor driving a conventional compressor, he said.

The "external combustion engine" is also a possibility, Newton indicated.

"All-electric" systems, including the heat pump or a conventional air conditioner with resistance heating have a growing potential, too, according to E. R. Ambrose of American Gas & Electric Service Corp.

Increased Resistance Heating Predicted

He predicts increased use of resistance heating in the form of baseboards, panels, and unit heaters. These can be used with standard cooling systems but have greater possibilities with the heat pump, Ambrose said.

"With resistance heaters in individual rooms, you wouldn't have to oversize the heat pump to meet winter needs, which would reduce first costs, and resistance heaters would not need to operate as much with a heat pump, so operating costs would be down," Ambrose declared.

Much basic research and development will be required before electronic, solar, or nuclear systems will become practical for year-round residential air conditioning, according to Walter F. Friend, Ebasco Services, Inc.

Eventually, some or all of these energy sources may reach the practical stage with research being spurred by possible shortages of conventional fuels combined with the growing use of electricity, Friend indicated.

"We hear that residential energy consumption per customer, in the United States now averaging about 2,500 kwhr. annually, can be expected to reach a level between 10,000 and 20,000 with the next two decades," he said.

"Air conditioning is one of the giant strides toward better living, but it already has become a major component of the increasing load from residential customers, which must be served by the electric and gas utility

(Concluded on next page)

ASHAE Meeting Discussions - -

(Concluded from preceding page) systems of the nation," Friend explained.

Codes, Standards Aspects Covered

Various aspects of codes and standards were discussed in another symposium by representatives of interested groups. George S. Jones, Jr., managing director of Air-Conditioning & Refrigeration Institute, for example, urged cooperation of such societies as ASHAE in the development and support of industrial standards for equipment as promulgated by ARI, as opposed to "commercial standards" which he defined as those "developed by the government with or without the advice and help of industry but with the same objectives."

Prefers Developing Standards Within Refrigeration, Conditioning Industry

"We at ARI do not believe commercial standards are necessary in the industrial and commercial refrigeration or in the air conditioning industry, nor do we believe they are to be preferred to standards developed by our own industry," Jones said.

Other speakers at this symposium included Cyril Ainsworth of the American Standards Association, R. S. Dill, National Bureau of Standards; J. C. Fitts, consultant to Heating, Piping & Air Conditioning Contractors National Association; and L. N. Hunter of National-U. S. Radiator Corp.

Included in the 14 papers presented at the regular technical sessions was one on indirect water heaters as related to the hot water requirements of automatic washing machines.

As long as the low limit control is set above 150° F., there is no limit on wash cycles with a tankless heater, although water temperature varies appreciably, according to the paper of L. L. Hill of Minneapolis-Honeywell and Prof. Warren S. Harris of the University of Illinois.

Number of washes possible with storage-type heaters, however, is limited, they said, by such factors as size of tank, temperature setting of low limit control, and cold water temperature.

Another in the series of papers describing panel heating and cooling research at the

ASHAE Environment Laboratory discussed natural convection and radiation in a panel heated room. This paper had been prepared by T. C. Min, L. F. Schutrum, G. V. Parmelee, and John Vouris of the laboratory staff.

'Thermal Response' Method Of Heating, Cooling Load Calculation Outlined

Use of the "thermal response" method of calculating heating and cooling loads of structures was outlined in a paper by W. R. Briskin and S. G. Reque, both of General Electric Co.

With this method a building structure is compared to a resistance-capacitance circuit characterized by its response, in output current, to an input pulse which may be a temporary change of potential at the input

side of the equipment.

By means of the thermal response method, they believe a simpler way of calculating loads could be developed which would avoid the customary dependence on outdoor design and other experience factors.

Problems associated with the intermittent heating and cooling of buildings and the use of the "finite differences" method for analyzing such problems were outlined in a paper by P. L. Pfennigwerth and Prof. Merl Baker of the University of Kentucky.

The University of Minnesota's studies of solar energy were reviewed by Profs. Richard C. Jordan and James L. Threlkeld, who pointed out that two major problems are involved in harnessing solar energy: extent and availability of energy supply, and design and performance of a flat plate collector.

Ground grids for heat pumps

also came in for discussion in a paper by Prof. George S. Smith, University of Washington, who stressed the importance of careful analysis of design and the need for more careful and detailed studies.

Fin-Coil Research Reported

Research on fin coils was reported by Prof. D. G. Shepherd of Cornell University, whose initial work has been limited to one-row coils with low velocity forced convection. Further studies, however, are planned on two-row coils and one-row coils with corrugated fins.

An increase in humidity lowers odor perception, and an increase in temperature drops odor level of cigarette smoke slightly, but temperature does not seem to have a consistent effect on odor perception, it was brought out in a paper by William F. Kerka and Clark M. Humphreys

of the ASHAE laboratory, which is conducting studies of odor perception in air conditioned spaces.

Problems of moisture in the present-day smaller and more tightly built homes were outlined by Prof. Frank A. Joy of Pennsylvania State University and D. R. Fairbanks of Carrier Corp., who suggest that an efficient vapor barrier would be justified even at considerable cost.

Vapor flow was also the subject of another paper presented by S. C. Chang of the Central Institute of Health Research, Peking, China, and Nell B. Hutcheon, National Research Council of Canada.

Other papers presented discussed such things as heat requirements for snow melting systems, perimeter heating in residences, air velocities in two parallel ventilating jets, and indirect evaporative coolers.

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Air Conditioning Conference Spotlights the Air-Cooled Condenser

CINCINNATI — Air-cooled condensers are working better than some manufacturers expected, judging by comments made at the Air Conditioning Conference held by the American Society of Refrigerating Engineers during its 52nd annual meeting here.

"Problems that air-cooled condensers have brought are not as bad as anticipated," declared M. D. Irwin, manager of Carrier Corp.'s Weathermaker Product Engineering Dept. and one of the speakers on the panel.

Irwin stated, however, that no matter how air-cooled air conditioners are installed, the dealer finds himself to a degree in the applied refrigeration field.

And Ralph Gonzalez of Airtemp, conference chairman, cited two commercial installations in Texas where lower operating costs resulted when air-cooled condensers were substituted for existing cooling towers.

But because many designs require remote installation of the condenser or condensing unit, there are problems in the field not encountered when the manufacturer has full control as with completely packaged equipment, it was indicated and changes in design have also been required by the pronounced swing to air-cooled condensing, it was brought out.

Four papers were presented at the conference, which had been billed as being devoted to Packaged Commercial Units. Actual discussion, however, was largely concerned with residential because of the emphasis on air-cooled equipment which thus far has found its biggest market in the home field.

An analysis of the considerations involved in deciding whether to use packaged equipment or central plants for air conditioning larger buildings was presented by the first speaker, F. C. Wood, Atlanta district manager for York Corp.'s Industrial Div.

The remaining three papers and most of the chairman's remarks were devoted to air-cooled condensing. Irwin discussed field problems. Justin Neuhoﬀ, manager of engineering of General Electric Co.'s Commercial and Industrial Air Conditioning Dept., reviewed studies of condensing surface and air quantities for integral horsepower equipment, and Paul W. Wyckoff, chief engineer of Airtemp Div., Chrysler Corp., took up problems of compressor design.

Performance Seen as Factor In Growth of Air-Cooled Condensers

"The use of air-cooled condensing equipment is progressing very rapidly," declares Gonzalez, director of application engineering and sales training for Airtemp. "One of the factors that is helping this rapid acceptance is the performance of the equipment. The properly designed and installed equipment is proving much better than the most optimistic engineering expectations."

To back up this statement

Gonzalez revealed data obtained with the cooperation of the John H. and Earl Hunter Co., Brownsville, Texas, contractor, from two of the firm's installations there.

"In Brownsville the Roger's Studio is an optical and photographic shop," he explained. "It was air conditioned with two 5-hp. packaged units operating in conjunction with a cooling tower. Toward the end of the 1954 season, the water-cooled equipment was replaced with two 5-hp. air-cooled units.

"The compressors of the air-cooled units were of exactly the same displacement and used the same refrigerant as the water-cooled equipment which they replaced," Gonzalez pointed out.

"However, the electric motors and starters of the air-cooled

equipment were arranged for the higher amperage draw at the maximum load conditions that occurred with the extra equipment. This particular installation has its power on a separate meter from its lights, and the air conditioning equipment is the major power usage.

"Since the power rates did not change between the two years, and since the weather in Brownsville is very uniform, the power costs during the principal summer months are a good index of the operating costs for this particular installation," Gonzalez believes. "The air-handling system and the evaporator coils were not changed when the air-cooled condensing equipment was installed.

Table 1 shows the cost figures (Continued on next page)

Table 1—How Air, Water Costs Compare For Photo Studio In Brownsville

Cooling Tower—1954		Air Cooled—1955	
April	\$ 56.20	April	\$ 43.80
May	52.80	May	43.60
June	70.00	June	59.60
July	63.60	July	65.20
August	75.80	August	65.40
September	71.80	September	63.00
October	54.60	October	53.00
TOTAL	\$444.80	TOTAL	\$393.60

Table 2—How Air, Water Costs Compare For Cafeteria In Brownsville

Cooling Tower—1954		Air Cooled—1955	
April	\$ 80.60	April	\$ 57.80
May	72.40	May	75.20
June	88.40	June	105.80
July	89.20	July	102.00
August	113.20	August	97.20
September	112.00	September	89.00
October	76.60	October	79.80
TOTAL	\$632.40	TOTAL	\$606.90

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Here's proof that Westinghouse gives:

1. More Cooling per Dollar When You Sell
2. 23.4% More Cooling per Dollar in Use
3. 32% Extra Reserve Cooling Capacity

Laboratory tests made in April, 1956 against major competitive brands showed **Westinghouse excelled in all important respects.** Check the figures yourself!

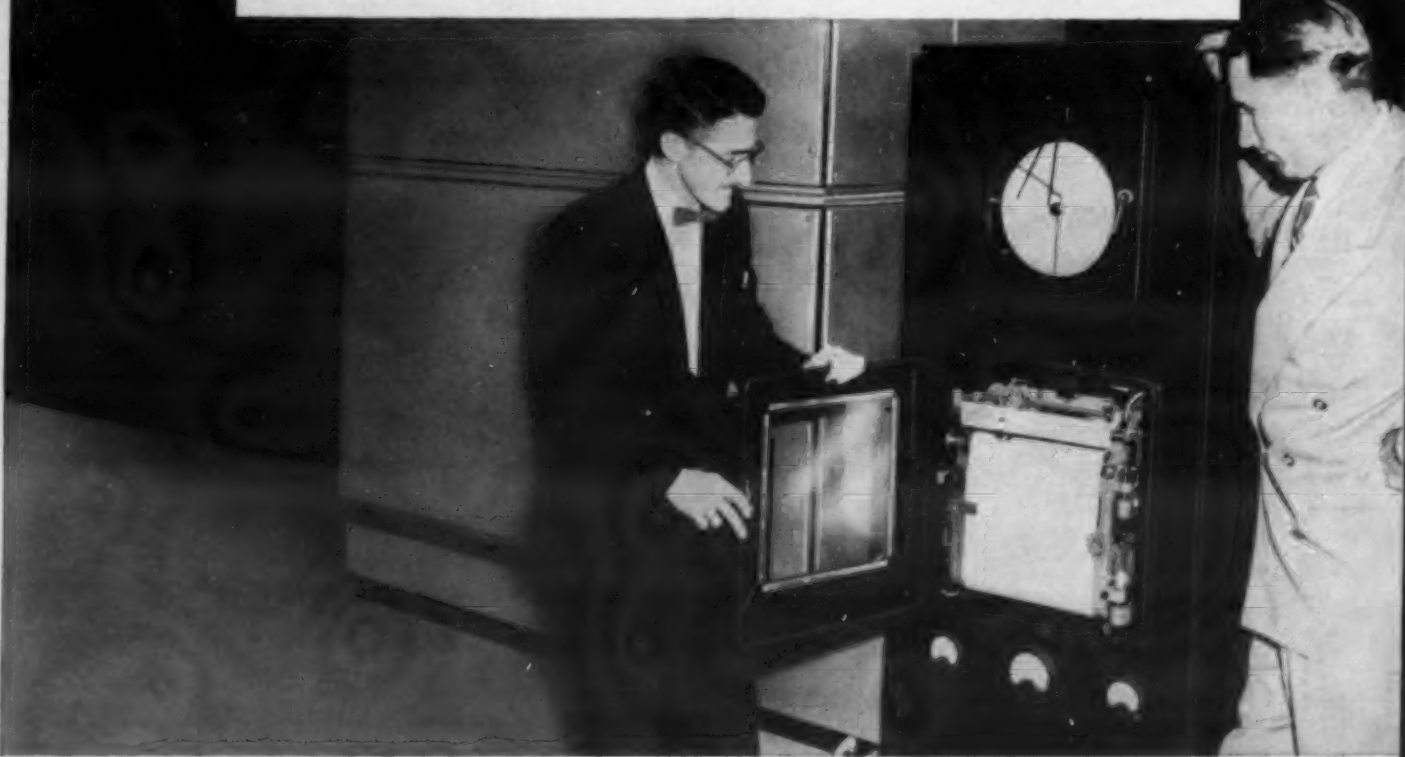
Cooling Capacity		Operating Cost Ratio	
Westinghouse Air Conditioner	37,000 BTU/Hour	Westinghouse	1.00
Brand A	34,300 BTU/Hour	Brand A	1.02
Brand B	29,400 BTU/Hour	Brand B	1.20
Brand C	26,700 BTU/Hour	Brand C	1.22
Brand D	25,100 BTU/Hour	Brand D	1.30

Look at this test of the Westinghouse compressor compared to a compressor used in nearly half of all air conditioners made:

Westinghouse Waterless Air Conditioner Compressor		Compressor Used on nearly half of all Air Conditioners made	
Capacity	41,300 BTU/Hour	Capacity	31,000 BTU/Hour
Efficiency	11.5 BTU/Hour/Watt	Efficiency	9.32 BTU/Hour/Watt

Test Conditions: Condensing Temperature.....110°F.
Evaporating Temperature.....40°F.
Suction Gas Temperature.....65°F.

TEST CONCLUSIONS: Westinghouse has 32% more cooling capacity than nearly half of all air conditioners made. It costs 23.4% less per 1,000 BTU of cooling capacity delivered to operate the Westinghouse unit.



(Continued from preceding page)

for the period of April-October in 1954 when the system was water cooled, and 1955 when air-cooled condensing units had been installed. The cooling tower installation was not new, and we are not certain that the condensers were very clean," Gonzalez admitted. "We know that the job had been in operation for about 10 years, but the condensers had to be cleaned about twice a year. Therefore, they must have been in somewhat normal shape," he suggested.

"Both sets of costs were taken directly from the same meter. It is not particularly significant that the air-cooled cost in this case was slightly under the water-cooled cost. The important thing," he emphasized, "is that they are so close together that for practical purposes, the customer felt no difference from operating cost standpoint.

"Another case under similar conditions, also in Brownsville, was the replacement of three 5-hp. water-cooled units by two 5-hp. air-cooled units, plus one of the water-cooled units being converted to city water. This was a cafeteria installation, and as in the previous case all of the low-side equipment was retained in identical condition.

"One of the 5-hp. water-cooling packages was retained on city water because previous operations had shown that the two 5-hp. units carried the load approximately 95% of the time," Gonzalez explained. "The third unit came on so infrequently that it was felt that the water cost from its small amount of operation would not be prohibitive. The expectation with regard to water cost was completely justified by the first year's operation. The owner reported that he noted no impor-

tant increase in water usage.

"This system's power costs for the 1954 and 1955 periods are shown in Table 2. Here again, the close approaches of the two costs to each other indicate that so far as the customer is concerned there was no difference between the operating cost of the two types.

"These, of course, are only two case histories from one specific location," Gonzalez reminded the conference. "There is one interesting commentary to be made regarding these figures: If the air-cooled equipment requires the same or slightly less total power for the season for the same usage, then the air-cooled equipment is producing on the average as much, or slightly more, tonnage than the water-cooled equipment on tower operation.

"This conclusion is something that none of us in the air con-

ditioning business have ever suspected, but the evidence points increasingly in that direction," Gonzalez asserted.

Air-Cooled Problems Viewed Less Serious Than Anticipated

Growth of air-cooled condensing has brought problems in field application, particularly where the condenser or entire condensing unit is installed remotely from the rest of the system, indicated Irwin of Carrier, but these problems haven't been "as serious as feared," he commented.

There are problems, though, including getting adequate air through the condenser, keeping condenser air supply from being superheated, removing non-condensibles, control of head

pressures at both high and low outside air temperatures, refrigerant migration due to low outside temperatures, and others.

In locating air-cooled condensers, Irwin questioned putting them inside screened areas, such as breezeways, where fouling of the screens could cut air supply, and he cautioned not to install them flush with a dark, flat roof where they'll get superheated air.

"About 2 ft. above the roof level is okay," he said.

"In attic installations we prefer to duct outside air to the condenser instead of using the attic as a supply plenum. Also," Irwin declared, "it's dangerous to use the attic as a discharge plenum for the condenser. The hot discharge air can be forced down through stud spaces and into the conditioned area through electrical outlets, etc.

"With remote units the refrigerant lines should be kept as short as possible and be properly sized to minimize pressure drop," he emphasized. "The lines also should be acoustically isolated from the structure to minimize noise transmission."

Fastening the lines directly to joists in a basement, say, can cause noise problems.

He also advised that foundations should be about twice as heavy as the remote condenser or condensing unit, and he cautioned that incorrect orientation of the condenser discharge air stream also could lead to noise problems.

The problem of refrigerant migration can occur during the off cycles when the outside temperature is lower than indoors. This causes the refrigerant to condense in the crankcase.

"A pump-down control system is one answer," Irwin said. "A solenoid valve in front of the expansion valve which is controlled by a thermostat and the compressor being controlled by the low pressure switch can solve the problem. Crankcase heating on off cycles is another logical answer."

And for the problem of nighttime operation in low ambient with partial load, Irwin says, "we probably need modulation of air across the condenser. The old thermostatically controlled 'winter fronts' we used to see on automobiles may be the simplest answer," he suggested.

Design Differences Revealed In Survey Of 7 Manufacturers

Reviewing the development of air-cooled condensers, Neuhoof of G-E commented on the wide differences of condenser design revealed in a survey of seven manufacturers.

"All companies are using copper tubing and aluminum fins for their condensers but from this point of agreement the individual design of each of the companies showed considerable variation," he said.

(Incidentally, there was considerable discussion later about all-aluminum condensers, which, it appeared, much of the industry would like to use if all the problems could be solved.)

"For example, the number of rows deep varied from 2 to 6. The c.f.m. of condenser air per

(Concluded on next page)

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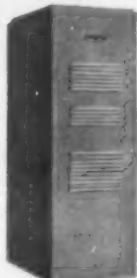
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INTRODUCING THE NEW WESTINGHOUSE GAS-OIL FURNACE LINE. Now a style and model for every residential heating need . . . they are designed to link-up with the Westinghouse "Extra-capacity" air conditioners for year-round air conditioning!



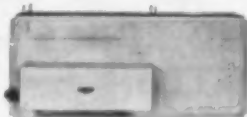
New Basement Units— gas or oil-fired units with automatic controls. Ideal wherever overhead space is limited.



New Utility Units— they're "File-Cabinet-Size" for homes without basements. Factory wired—gas or oil-fired.



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Air-Cooled Units, Water-Cooled Units, Year-Round Units, Heat Pumps—for every residential and commercial need!

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WESTINGHOUSE ELECTRIC CORPORATION, AIR CONDITIONING DIVISION, STAUNTON, VIRGINIA

For more information about products advertised on this page use Information Center, page 22.

Air-Cooled Condensers --

(Concluded from preceding page) a median of 124.5°. There was ton of air conditioning varied good agreement on 115° as from 615 to 1,170 with a maximum outdoor operating median of 900. Air face velocity temperature. Tube diameters was from 280 to 605 f.p.m. run from $\frac{3}{8}$ to $\frac{3}{4}$ in. Total with a median of 455. Condens- square feet of surface per ton ing temperature at 95° ambient varied from 124 to 222 with a ranged from 117° to 130° with median of 151.

"Condenser fan kw., which can be an important part of the total operating cost, was reasonably consistent around a median of 0.16 kw. per ton," Neuhoﬀ said. "One unit, however, was reported as drawing twice that power."

Circuiting of the condensers was described as "very fascinat-

ing. Everyone," he said, "has his own ideas which I think are based mostly on alchemy and witchcraft."

"It would seem that the industry is far from being ready to accept any standard figures for c.f.m. per ton, face velocities, or total surface since, depending upon the design, any of these figures can be varied," Neuhoﬀ commented.

pressor displacement were cited.

"We strongly recommend designing for 120° outside temperature at 10% under rated voltage," he declared. "Even if this condition occurs only once every six years, I don't want to have to talk to customers whose units stop when it gets 115° F. outside."

Henry G. Strong of RISAC warned that "noise can be a serious problem with residential air-cooled equipment."

And Israel Kramer of Kramer Trenton Co. cautioned that the manner of locating and installing air-cooled condensers should be watched carefully.

"A condenser too close to the ground could pick up grass clippings, etc.," he said, thus sharply cutting its efficiency.

Questioned about sub-cooling, Irwin of Carrier explained, "we're averaging 3° to 5° of sub-cooling as the refrigerant leaves the condenser—on remote air-cooled condensers—but you can lose that in the lines."

Wyckoff, however, revealed that Airtemp "recommends a sub-cooler to get 10° to 12° of sub-cooling at the expansion valve. We want to avoid flash gas, of course, and the resultant possibility that the contractor would then think additional refrigerant was needed."

The sub-cooler suggested by Airtemp, he said, consists of soldering the lines together for a distance of 5 to 9 ft., which varies with the size of the equipment and how far away the condensing unit is from the coil.

Packaged vs. Central System for Cooling Larger Buildings

In the first talk of the conference F. C. Wood of York offered a comparison of packaged equipment vs. central plants for air conditioning larger buildings.

"The packaged system," he said, "has the economic advantage of adaptability to a 'step program' of conditioning and provides maximum continuity of capacity in the face of partial shutdown for repairs. It generally can be more quickly installed, initial cost is usually lower, ducts are smaller hence less conspicuous, and requires less auxiliary horsepower."

"The central plant by deliberate design," Wood declared, "is better able to produce the ultimate in comfort, provide better air filtering, and operates at a lower noise level. The central plant provides more comfortable winter heating, is more flexible in adaptation to new buildings, has longer useful life, less and easier maintenance, simple and less disturbing-to-occupants."

Wood summarized: "The central plant is best applicable for new buildings above 100 to 150 tons capacity, or existing buildings where possible income justifies a long-term investment, for a year-round system, and for more permanent installation."

"The packaged equipment system is best applicable for buildings of medium tonnage, for step-program air conditioning where equipment is owned by tenant on short lease, and where it is physically most practical."

Designing Equipment For 115° Outside Temperature Suggested

Effect of air-cooled condensers on compressor design came in for some discussion by Wyckoff of Airtemp, who pointed out that the compressor is the most expensive single component in an air conditioner.

Wide variances in load calculations for residential air conditioning and differences in com-

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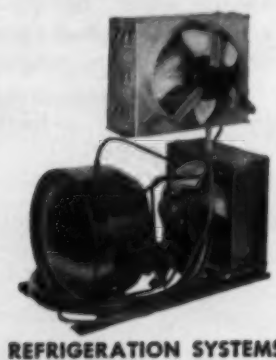
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Prospects Should Get Advice

Milwaukee Area Cooling Installations Vary on Permits, Water Use, Disposal

MILWAUKEE — Installation of air conditioning equipment is governed by building codes in most of the Milwaukee area communities. But requirements differ from one municipality to another.

Fox Point Bans Water-Cooled Units

All of the communities, with the exception of Fox Point, allow installation of either water or air-cooled air conditioning equipment. Fox Point permits no water usage for home air conditioning installations.

In Wauwatosa use of water is somewhat qualified by a regulation which provides that water is restricted for installations under 1½ hp. and for those of 5 hp. and over. However, restriction of water for all installations has been considered.

Disposal of water used in air conditioning equipment is a problem for some communities.

Boots, Floor Diffusers Pressure Loss 5 Times Pipe Diameter In Inches

CHICAGO — Pressure losses for certain combinations of boots and floor diffusers used in perimeter systems can be expressed in terms of an equivalent length of duct in feet equal to five times the diameter of the pipe in inches, the National Warm Air Heating and Air Conditioning Association was told at its first technical conference here.

The data was developed in studies at the University of Illinois in cooperation with the association, explained M. V. R. Rao, research assistant, who presented the findings.

The formula is limited to pipe sizes from 3½ in. to 6 in., PH-4 boots, and area ratios (outlet free area to duct area) from 1.25 to 3.20, Rao said.

Most of Rao's paper was devoted to describing the test setup and reviewing the steps involved in arriving at the formula.

In Cudahy, if no other means of water disposal is available, it may be disposed of in sanitary sewers. However, permission must first be obtained from the building inspector.

In Hales Corners, water disposition may be made to the outside only. And this method is not considered too desirable, as the ground condition is not such that it easily carries water away, it was noted.

Permit Necessary In Brown Deer

In Brown Deer, permission must be obtained before installing air conditioning units, and the board has considered restriction of water use for air conditioning.

Municipality	Permits Required				Water Disposition - Comb. Storm and Sanitary			To Outside
	Air Cond. Equip.	Elec.	Plbg.	Sanitary Sewer	Storm Sewer (None available)	Sanitary	Storm	
Bayside	No	Yes	Yes	No	(None available)	No	Yes	Yes
Brown Deer	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Cudahy	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Fox Point	Yes	Yes	Yes	---	---	---	---	---
Franklin	No	Yes	Yes	No	(None available)	Yes	Yes	Yes
Glendale	No	Yes	Yes	No	Yes	No	Yes	Yes
Greendale	No	Yes	Yes	No	Yes	No	Yes	Yes
Greenfield	No	Yes	Yes	No	Yes	No	Yes	Yes
Hales Corners	No	Yes	Yes	No	(None available)	No	Yes	Yes
Milwaukee	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Oak Creek	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
River Hills	No	Yes	Yes	No	(None available)	Yes	Yes	Yes
Shorewood	No	Yes	Yes	No	Yes	Yes	Yes	Yes
South Milwaukee	No	Yes	Yes	No	Yes	No	Yes	Yes
St. Francis	No	Yes	Yes	No	Yes	No	Yes	Yes
Waukesha	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Wauwatosa	Yes	Yes	Yes	No	Yes	No	Yes	Yes
West Allis	Yes	Yes	Yes	No	Yes	No	Yes	Yes
West Milwaukee	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Whitefish Bay	No	Yes	Yes	No	Yes	No	Yes	Yes

Residents planning installation of air conditioning equipment in Milwaukee or any of the surrounding communities were advised by air conditioning industry spokesmen to investigate requirements before proceeding with installations.

A chart showing air conditioning requirements demanded by local governmental bodies is shown above.

'Fluid Heat' Title Wins Prize for 3 In MCA Contest

LOUISVILLE, Ky. — Three men won duplicate prizes of \$100 government savings bonds for their winning entries in a contest sponsored by the Mechanical Contractors Association of America to find a new name for "wet heat" to describe system using water and steam.

Their winning entries were the more appropriate term "Fluid Heat."

The winners—William J. Olvany, New York; A. M. Howarth, Trenton, N. J.; and Frank Haines, Washington, D. C.—were announced during the 67th annual convention of the MCA (formerly known as the Heating, Piping & Air Conditioning Contractors National Association).

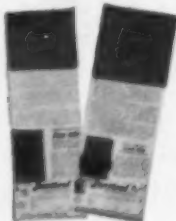


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Only Janitrol gives you both 'add on' and year 'round conditioners with the fabulous new PRIDE O' YARD air-cooled compressor-condenser unit, styled and powered to build your profits and your prestige! It's low, sleek, beautiful—completely outmodes all other units of its type in appearance, performance and freedom from service call-backs! No wonder Janitrol dealers can count on a lion's share of the business!

The excellence of design and construction that distinguishes all models in the complete Janitrol line assures easy installation, foolproof performance, complete satisfaction after the sale. And making the sale is easier, too, because your prospects know the Janitrol name plate guarantees top quality and value.

There are Janitrol 'packaged' conditioners for waterless or water-cooled operation in every residential and light-commercial application. Models for use with existing warm air systems, and for independent operation. Combination cooling-heating units to feature for year 'round comfort. And Janitrol backs you up with powerful merchandising and advertising support, spearheaded by sales-making ads like these in magazines that reach your best homeowner and builder prospects!



Ask your Janitrol representative for the profit-making story on Janitrol's complete air conditioning line right away!

...the best years of your business
begin with...

Janitrol
HEATING ... COOLING

Janitrol Heating & Air Conditioning Division
Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Moffats, Ltd., Toronto 15

Complete line of gas and oil furnaces, unit heaters, conversion burners, water-cooled and air-cooled summer conditioners, combination heating-cooling conditioners.

CASH-IN with the powerful
sales appeal of new
Janitrol 'ADD-ON'
WATERLESS COOLING



Compare! On every count—performance, beauty, installation ease—there's more for your customers, more for you with new JANITROL ADD-ON COOLING! Beautiful PRIDE O' YARD air cooled compressor-condenser unit adds sparkling beauty to any yard, obsoletes ordinary units designed with no thought for appearance. Quiet, powerful! Compressor motor and condenser especially designed for air cooled operation. Easily teamed with most any warm air system... evaporator coil goes in duct, PRIDE O' YARD unit outside. No usable indoor space needed! 2, 3 and 5 H.P. sizes.

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L.O.F. Speeds Shipping Time on 'Thermopane'

TOLEDO—New shipping schedules on "Thermopane" insulating glass greatly reducing the time from receipt of order to delivery have been announced by Libbey-Owens-Ford Glass Co. to its customers.

This is one of the first results of the newly expanded plate glass capacity at the East Toledo plant where two new 1,100-ton plate glass melting furnaces have been put into production this year, it was further said.

E. M. Everhard, vice president in charge of sales, reported rapid progress has been made in clearing up the backlog of orders at the Thermopane plant. Reduction in shipping time schedules have been made monthly.

"Many of our distributors now are approaching a normal stock of standard sizes of Thermopane so that the deliveries to home builders, contractors, and replacement market may be made immediately," said Everhard.

"Thermopane manufactured with plate glass is now on a 60-day maximum shipping schedule at the factory and units made with sheet glass have been reduced to a 35-day schedule, the executive continued.

Thermal Engineering Corp. Opens In Huntsville, Ala.

HUNTSVILLE, Ala.—Thermal Engineering Corp., a new air conditioning and engineering concern, has opened for business here.

Allen Trott, an engineering graduate of Alabama who has been a sales engineer in Birmingham for several years, will be in charge of the operation, located at 119 W. Holmes St. here.

The other partner is the firm of Taylor B. Bodkin, head of the Bodkin Engineering & Supply Co., of Sheffield. Bodkin will remain in Sheffield.

According to Trott, the engineering department will offer mechanical contracting for high pressure steam work, gas conversions, water and sewage treatment plans, plumbing, and air conditioning.

Comfort Cooling a Must

Supermarket Has Choice of 3 Types Of Air Conditioning, Grocers Told

CORONADO, Calif.—With the possible exception of certain Pacific coastal areas, today's supermarket "should be equipped with comfort cooling regardless of geographical location."

Speaking at the 35th annual convention of the Western States Grocers Association, John J. Robanser, Safeway engineering division manager, followed this assertion with a discussion of various types of air conditioning equipment.

Stores can use one of two basic systems, he said. Central and individual package-type air conditioners combined with heating units were mentioned.

For stores containing 15,000

to 25,000 sq. ft., Robanser recommended the central system as having "probably the most practical application."

He described it as a combination air conditioning, heating, and ventilating system. The setup includes a central air conditioning unit with heating coils, complete with blowers, air distribution ducts, remote compressor and condensing equipment, and a gas-fired hot water heating system with boiler.

An important factor in choosing air conditioning equipment "is price," Robanser declared. A general formula given by the engineer shows that "for estimating purposes" central systems cost about \$500 to \$600

per ton with 6,000 to 25,000 sq. ft. gross area requiring from 10 to 75 tons.

Package-type air conditioners, the Safeway official averred, have been improved in design resulting in one or more built-in compressors, condensing systems, cooling and heating coils, and electrical controls in addition to "an attractive outside casing."

Ranging from 3 to 15 ton refrigeration capacity, the cost of a complete installation "can be estimated at \$400 to \$475 per ton," Robanser said.

Calling these package units "the answer" to air conditioning of stores being remodeled and for new stores having a gross area of up to 10,000 sq. ft., Robanser warned that for stores larger than this size "a careful engineering study is advisable" before deciding between package type and central system installations.

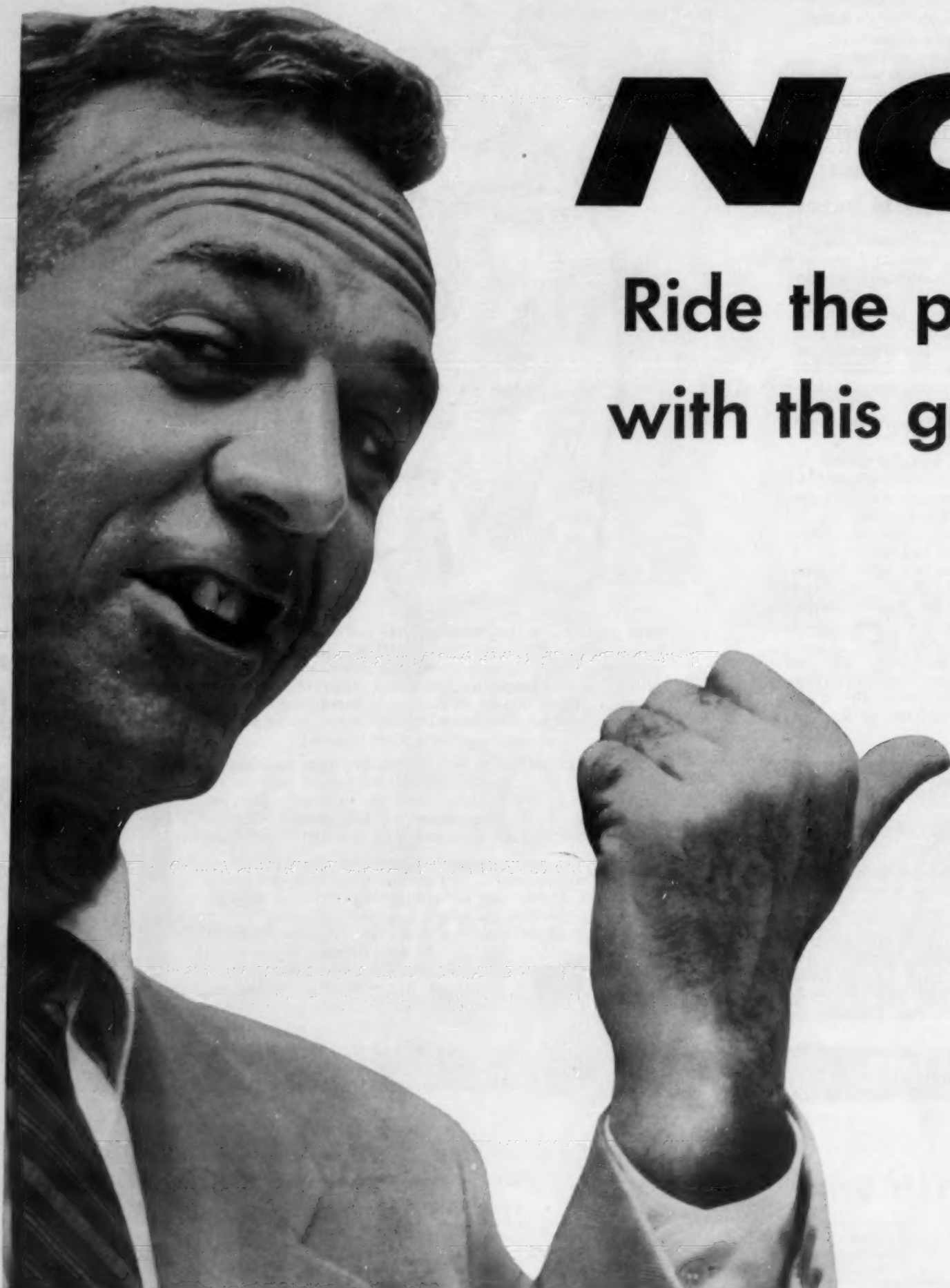
Bill Marked 'Paid' for Free Warranty Repairs Educates Customers

DETROIT—How do you teach customers to recognize a reasonable service bill when they see one?

Here's a suggestion from Blaine Lytle of Air-Con Heating Supply Co. here.

When a customer calls for free service during the warranty period, send him a bill for the service at your regular rates. Mark the bill "paid under your warranty policy."

"That tells the customer that the service call cost you money, even though he didn't have to pay it," Lytle said. "It teaches him that 'free' service isn't really free. And he learns to recognize a service bill when he looks at one."



NOW

Ride the peak with this great

Filtrine Since 1901

Tank Type WATER COOLERS

- ◆ Extra-large storage
- ◆ Safety from freeze-up
- ◆ Fast hourly recovery
- ◆ 20-year life construction

Capacities: 5 to 500 g.p.h.
Storage: 2 to 240 gals.

Water coolers for all uses factory-packaged with your condensing unit. Write for literature.

FILTRINE MFG. COMPANY
216 W. PROSPECT ST. • WALDWICK, N. J.

For more information about products advertised on this page use Information Center, page 22.

Allows More Storage Space

Refrigerating, Heating Units Set High Said To Have Fewer Mechanical Failures

JOHNSON CITY, N. Y.—Refrigerating and heating equipment serving the new Riverside Drive unit of P & C Food Markets, Inc. is housed in an enclosed projecting gallery over the meat department and its workroom.

The company explained that fewer mechanical failures result when fans and other cooling equipment are higher than the refrigerated rooms. Also, this arrangement means more basement and street-floor space for storage and other uses.

A stairway attached to a trapdoor in the ceiling of the produce work room provides access to the gallery.

A floor unit air conditions the \$100,000 store.

Selling area of the 16,000-sq. ft. building is practically windowless. There are four small opening, about 1 by 2 ft. each, near the ceiling. A large glass and aluminum vestibule entrance admits some daylight.

York Names Werden

YORK, Pa.—Robert G. Werden has been named North Atlantic district manager of York Corp., it was announced by Ray K. Serfass, York vice president and general manager of the Industrial Div.

Werden will have his offices in New York City.

\$7,500 Mechanical Contractors' Job Needs License In S. C.

COLUMBIA, S. C.—A change in the South Carolina contractors' licensing law, effective July 1, requires mechanical contractors to get a mechanical contractors' license before offering to construct any plumbing, heating, air conditioning, or electrical improvement costing \$7,500 or more.

According to Chairman G. C. Shockley of the Contractors Licensing Board, the law will be enforced beginning Aug. 1.

General contractors have been covered by the licensing law since 1936, but the change in the law raises the minimum requirement from \$12,500 to \$20,000 in keeping with increased building costs.

Frederickson To Head Manitowoc Combination, Upright Freezer Sales

MANITOWOC, Wis.—A. N. Dedricks, general manager, Manitowoc Equipment Works, has announced the appointment of Ray Frederickson to general sales manager, responsible for the sale and distribution of the company's complete line of upright freezers and combination refrigerator-freezers.

Fredrickson, formerly contract sales manager of Deep-freeze, moves up from field and contract sales manager of Manitowoc Equipment Works.

Among Fredrickson's highly successful efforts was the organizing and piloting of a new bakery equipment division, offering upright freezers designed for bakery operation.

1 Alabama, 9 Ohio Contractors Request RACCA Membership

CLEVELAND—Ten applications for membership in the Refrigeration and Air Conditioning Contractors Association were received during May and the first half of June, Ray Kromer, executive vice president, announced recently.

Nine of the applications came from Ohio and the tenth from Mobile, Ala. Six of the Ohio applicants are located in Toledo, two in Cincinnati, and one in Lima.

Toledo contractors who submitted applications are the Lumm Corp., John F. Stark & Sons, Refrigeration Maintenance Co., Hausman Steel Co., Davison Associates, Inc., and James A. Foley, Inc.

Cincinnati applications came from Arthur Radtke of Cincinnati Air Conditioning Co. and Harold Koch of Twentieth Century Refrigeration Co., it was added.

Applications were also received from C. F. Sweeney of Sweeney Engineering Co., Lima; and K. L. Dixon and J. N. Fowdren of Able Service Engineers, Mobile.

Harrelson Named Servel Credit, Collection Mgr.

EVANSVILLE, Ind.—J. Paul Harrelson has been appointed to the position of manager of credit and collection at Servel, Inc., according to W. H. Schrader, Servel vice president in charge of finance.

For the past nine years he has been associated with the Brandeis Machinery and Supply Co., Evansville, as credit and collection manager, it was explained.

W

of the Icemaker season

new dealer plan!

More to sell!...More help in selling!...

Here's the surest way yet to cash in fast on the booming market for automatic ice machines!

Start right off with a full line!

Be ready to touch all the bases. Carrier makes eleven (count 'em) models not just one or two. They give you five kinds of ice to sell—cubed, flaked and three grades of crushed. You've got a bin-full of exclusive features PLUS CERTIFIED CAPACITY—a way to GUARANTEE your prospect all the ice he needs!

Let Carrier train you fast!

Carrier training—the best in the field—gets you off to a quick start. Packaged sales training material includes three new

training films, the new Icemaker Handbook with market and product information, competitive comparisons, engineering data and a lot more!

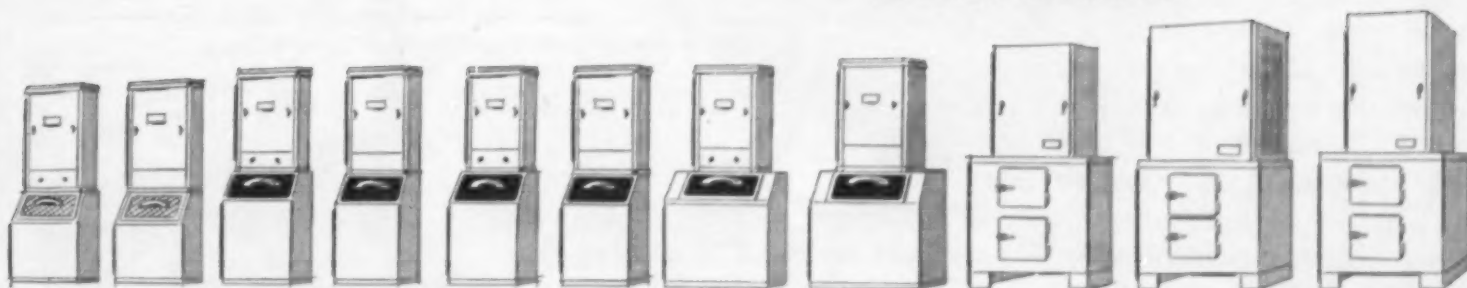
Wrap it up with a full-scale promotion!

The Icemaker Salesman Kit contains everything you need to kick up an ice storm—broad-sides, spec sheets, self-mailers, return cards, proposals, Certified Capacity Certificates, profit analysis forms, special ad mats. All this and national advertising, too—the strongest dose ever!

It's time to call your Carrier Distributor. You'll find his name in the Classified Telephone Directory. Or write Carrier Corporation, Syracuse, New York.



automatic ice machines



For more information about products advertised on this page use Information Center, page 22.



WILL SHELVING HELP YOUR SALES?

"Get the E-Z Story"



"E-Z" SHELVING
GIVES PIN-POINT ADJUSTABILITY

"E-Z" BRACKETS & STANDARDS

Provides These Advantages

- (1) Helps solve Uneven Floor Problem. Upper Shelves Adjust Level without shimming.
- (2) Helps Solve Odd Package Sizes. Permits vertical spacing to fraction of inch.
- (3) Provides rugged "back-bone" for many shelving requirements.
- (4) Readily Adapted to Precision Tailored Fixtures.

NO KEYHOLES OR SLOTS

Brackets slide up and down in Standard groove and lock at any point on Standard.

HANDLES ALL NORMAL DISPLAY LOADS

Write For Free Folder

Standard Steel Works, Inc.

DEPT. AC-7, NORTH KANSAS CITY, MO.

They'll
Do It
Every
Time

by

Jimmy
Hatlo



Husbands! Get Ready To Relax and Enjoy It

Your "little woman" is the boss of your home. Any arguments?

Furthermore, she has anticipated those scientists who are preparing an easier life for her via automation.

As a matter of fact, she can hardly wait for all this to happen.

A General Motors "veep" reveals that a fully automated Home of the Future might be controlled from one small instrument box in her bedroom by a "hep" wife whose husband can be badgered into purchasing such a system.

Then she'd never have to get out of bed!

Techniques for an idealized automation existence for housewives now are known—and need only to be applied (and sold, of course) before the Utopia Era for sweet-hearts will arrive.

Hectic morning problems of most wives and mothers could be solved without normal hysteria—thanks to promised automation. Here's a sample outline of an automated routine which may be enjoyed by our blessed womenfolk within the next decade:

Teen-age Sally could be awakened at eight with softly sentimental music. Buster junior, though, must be blasted out of bed at 7:15 with a military band playing "Stars and Stripes forever" double-decibel-loud. Next:

Father's coffee must approach the boiling point precisely at 7:30, lest the entire household get off to a bad start. Bacon, of course, and now and then an egg or two, automatically will be vended as various members of the family wander downstairs.

Naturally they will have had a good sleep, and be in excellent health, thanks to complete home air conditioning.

Despite automation Pop, Mom, and the kids may be grumpy at first. Happily though, during breakfast, all members of the family will watch different television programs on personal screens while each a la carte morning meal is cooked and served in silence by tiny personal machines

beside each plate. Thus, no excuse for arguments. Each member of the family is pre-occupied privately.

Good old Pappy, in this dream-world deal, will emerge with his car idling and the garage doors open. And (natch) snow melted off the driveway (or the lawn mowed) by another electronic device. So he sashays off to work in good humor.

In the meantime cat-ejector and dog-retriever devices have helped Mom recover her poise after her morning ordeal (This is an ordeal?)

A complete family-finessing deal of this sort could be recorded upon electronic tape, our G-M friend forecasts. Whereupon buttons would be pushed, instruments checked, and emotional problems taken care of easily in advance by a tape-operated robot.

Nor is this automation merely something for the future. A survey by an association of Michigan manufacturers reveals that the 95,206 domestic servants employed in the state of Michigan in 1930 had dwindled to 40,125 by 1950. This meant two domestics for every 100 homes then (that was six years ago). The surveyors forecast that said index number will drop to one for every 100 homes by 1960.

Thermostatically controlled heating and home cooling systems, water heaters, automatic washing machines, dryers, refrigerators, home freezers, dishwashers, and incinerators largely have removed the necessity for servants, the survey added. Furthermore, the tasks of those domestics still working are much easier nowadays because of the same trend toward household tasks being done by mechanical servants.

Home automation should be no problem to women. Our gals have been preparing for it ever since they wore pigtails or ponytails in grammar school.

Mr. Dealer: Will you be ready for this coming "whole ball of wax?" Will you have an adequate sales force to push the miracle products which soon will be introduced?

When folks is mean, it ain't that they hate you personal. It's more likely because they're miserable about something in their inside. You got to remember how most of the time they yell at you or get after you, it ain't you that they're yelling at but something inside themselves you never even heard tell of, like some other person has been mean to them, or something they hoped for didn't come true, or they done something they are ashamed even to think of, so they get mad at you just to keep their mind off it.—from "The Foolkiller," by HELEN EUSTIS.

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AIR CONDITIONING & REFRIGERATION **NEWS**

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'The Conscience of the Industry'

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VOLUME 78, No. 9, SERIAL No. 1,424, JULY 2, 1956

"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.



COOL CAR CATNAPPERS CAUSE CONSTERNATION

Refrigeration Engineering, Inc.
Los Angeles 22, Calif.

Editor:

Automobile air conditioning is becoming very popular, as you well know; and you might want to raise a warning flag to prevent possible accidents—after hearing this tale.

My adorable granddaughter and I decided to take a midday rest, while visiting Disneyland; so, since the car was 120° in the shade and (no shade), I quite naturally turned on the air conditioning, cooled the car off, and Jen went to sleep in the back seat. I was tired, too, so with nothing else to do, I

took off my shoes and promptly went to sleep in the front seat.

If an atomic bomb had been discharged under my car, I couldn't possibly (at my age) have jumped higher—when someone broke the glass window, over my head, I thought!!! I jumped up, blinked my eyes, saw a rather large crowd gathered around the car—and an excited man saying, "Mister, —mister, don't you realize your engine is running!" Apparently, we were supposed to have been asphyxiated.

I still believe in air conditioning for automobiles; and I guess the answer is to paint a sign, saying "My adorable granddaughter is just sleeping—Please do not disturb!"

H. T. JARVIS

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To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10.00 per year.

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7-2-56

450 W. Fort St., Detroit 26, Mich.

Gentlemen: Send the NEWS every week for one year. ☐ \$6.00 enclosed

☐ Bill me ☐ Bill Company.

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City..... Zone..... State.....

Freezer Door Provides Attention-Getting Entry to Firm's New Food Plan Headquarters



CURTIS COLLINS (l.), general manager of the Southern Freezing and Locker Co.'s freezer-food plan department, and Tillman Jones, president, confer outside the firm's new building which features the door of an Amana Star-Mor Model 19 freezer installed in the entrance to its reception room. The freezer door installed in this manner serves as an unusual display on the outside and as a striking demonstration of the freezer door's large frozen food storage capacity on the inside.

ALBANY, Ga.—There's a new "open door" policy in effect at the Southern Freezing and Locker Co. here, and it is proving to be quite an attention-getter for this appliance retailer and freezer-food plan operator.

In the new headquarters built for its expanding food plan operations, a complete 19-cu. ft. Amana freezer door was installed in the building's front door. A standard freezer door handle is used for opening the door.

Unique Entry Serves Two Purposes

Tillman Jones, president, and Curtis Collins, general manager of the firm's "Amana Plan for Better Living" operations, who conceived the idea of using the white enamel freezer door as a front door, explain that it serves two purposes:

"(1) From the outside, it advertises that the firm sells Amana freezers and freezer-food plan.

"(2) From the inside, which is in the building's reception room, its well-stacked shelves and gravity fed racks call customers' attention to the large amount of frozen food that can

be stored in the freezer door."

In addition to the food plan sales headquarters, the Southern Freezing and Locker's plant expansion program includes an appliance display room, a new room for food processing, locker plant, executive offices, and a classroom for training food plan salesmen.

Operates Fleet Of Refrigerated Trucks

Now covering most of southwest Georgia, Southern Freezing has branches in Bainbridge, Thomasville, and Moultrie and plans to open a branch in Americus shortly. Food freezers are delivered to these points from the main plant at Albany one



INSIDE the reception room of Southern Freezing and Locker Co., at Albany, Ga., the complete Amana freezer Star-Mor door can be seen installed in the regular front door. The unique idea dramatizes the door's large food storage capacity, it is explained by (l. to r.) Curtis Collins, general manager of the firm's freezer-food plan, Tillman Jones, president, and Elizabeth Arthur, secretary.

day a week in the firm's fleet of has a refrigerated compartment white refrigerated delivery in front and four Model 25 Amana freezers in the rear. The

Frozen food is delivered in a truck has both a side entrance specially converted truck which and a hydraulic tail gate.

INSTALL IN PAIRS

and get positive performance!



INSTALLED together, this popular A-P pair gives you both control and protection on all types of refrigeration and air-conditioning applications. It's the basis for economical, trouble-free positive performance. Always install A-P products and be positive of the results!



POSITIVE CONTROL

Model 207C Thermostatic Expansion Valve operates at any temperature . . . in any position

EXCLUSIVE A-P LIQUID CHARGE makes valve ideal for all applications . . . low temperature, commercial or air-conditioning. Versatility means fewer valves to buy.

MAINTAINS "STRAIGHT-LINE" SUPERHEAT — less than 1/2° superheat variation from -20° to +40°F suction temperatures.

AVAILABLE WITH OR WITHOUT EXTERNAL EQUALIZER—for popular Freon 12, Freon 22 and Methyl Chloride . . . in 1/2 and 1-ton sizes. NEW SMALL SIZE PLUS EASE OF INSTALLATION make it a real boon to servicemen. Fits handily in those hard-to-get-at corners.



POSITIVE PROTECTION

Model 410 Trap-Dri — with PA-400 refrigeration gel added — absorbs more water than ever!

• PA-400 refrigeration silica gel reduces moisture level of F12 to less than 10 ppm, at temperatures as high as 160°F. Gel is non-dusting . . . completely non-corrosive. Is not affected by oil in system.

operates on "depth filtration" principle — removes gummy deposits, sludge, scale, dirt, solder.

• Assures 100% trouble-free valve operation . . . prevents valve freeze-ups.

• Positive-acting honey comb filter

Carried in stock by most Jobbers

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DEPENDABLE Controls

For Air • Liquids • Gases • Refrigerants



Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

air conditioning because that type of equipment is not necessary."

A high Arkansas court ruled against the citizen. The ruling: Air conditioning is becoming standard equipment in homes, offices, and public buildings. It contributes to the comfort and efficiency of all those people who have occasion to utilize its benefits, and is as necessary as telephones, heating, etc., in courthouses.

Bully for Arkansas!

Good Cheer for Everyone

Almost seven months ago "Dope" revealed wonderful opportunities available to Ameri-

cans to celebrate some special day, week, or month.

Your "fan mail" indicated that loyal readers appreciated this service. Hence, we trust you're eager to learn what lies ahead in the way of further celebrations. The next few months, we're happy to report, will bring many more opportunities for kicking the gong around.

No cause has been overlooked, apparently. For instance, you can give your all to "Super Market Month," "Good Breakfast Month," "Cottage Cheese-Cling Peach Salad Time," "Festival of Gas," and "Better Bedding Time."

You can whoop it up for "National Ragweed Control," "National Hot Dog Month," "National Sandwich Month," and "National Better Breakfasts" in September.

Come October you have the chance to support a "Popcorn Fall Festival." In November,

you can spend all 30 days spreading the word for "Butter-Baked Turkeys." And if you've any strength left, there's "Holiday Eggnog Time" in December.

If month-long events are too much for you, there are some dandy week-long celebrations that sound fascinating. Such as: "National Crochet Week," "National Canned Salmon Week," "Save Your Vision Week," "Honey for Breakfast Week," and "National Smile Week."

P.S.: Any honey who desires to come over for breakfast, please write.

If you like to smile but not for a whole week, circle July 3 on your calendar so you won't forget about "National Fun Day."

Incidentally, July 3 is "Dope's" birthday. We like to think of it as "National Fun Day," by golly.

If you like rabbits, you'll want to get behind "National

Domestic Rabbit Week." Or if you're fond of stray pooches and want others to feel the same way, your big chance will come Sept. 23-29. That's "National Dog Week."

There'll be plenty of fun for everyone in 1956.

Slogan of the Year

Say, how about that for a rhythmic, poetic slogan for the remainder of this year? Try it this way:

"There'll be plenty of fun
For everyone
In 1956."

Let's all hope so.

Hooray for Their Side

Preconvention activities of the Republicans and Democrats take up much newspaper space these days. In the meantime, back at the ranch, unnoticed other political parties already

have adopted platforms and picked presidential candidates.

Such maverick groups as the Texas Constitution party, the Prohibition party, the Vegetarian party, the Poor Man's party, the Pioneer party, and the Greenback party are geared for action.

The Vegetarian party has chosen a platform which can be scored highly for brevity and sentiment: "Be kind to Animals." This platform is one to which "Dope" subscribes heartily.

Possibly even more appealing is the platform of the Pioneer party. The Pioneers, at their 1956 convention, came out four-square against war.

However, if we are kind to animals, doesn't it follow that we'll be kind to people? Then, millenium! No more wars!

Platform adopted by the Greenback party is somewhat more controversial. Originally in favor of cheap money, the Greenbacks have a new goal: cheap food. Dyspeptic query? Do Greenbackers ever eat in highway or hotel restaurants? Doubt it. Otherwise they'd be fed up to here with "cheap" food.

The Texas Constitution party has put sectionalism aside in selecting its nominees. They are Indiana's Senator Jenner and Utah's governor Bracken Lee. Any questions?

He's Against Sin

Prohibition party, undiscouraged by past results, again is asking you to vote for Dr. Enoch H. Holtwick of Greenville, Ill. (home of Carl Nevinger, pioneer air conditioner manufacturer). In the 1952 campaign, 70,000 electors thought Dr. Enoch would make a good president. No dice, though.

His 1956 running mate is Brig. Gen. Herbert Holdridge—proselytized from the Vegetarian party. From tut-tutting people who eat meat to cracking down on those who enjoy a drink, the general is bulling his way into oblivion—one might guess.

According to a last report on the Vegetarians, they were taking the loss of Gen. Holdridge bravely. 'Tis rumored that they have a hot replacement who is against card-playing and radio.

Poor Man's Party has renominated a New Jersey pig farmer and part-time bartender named Henry B. Krajewski.

His party has high hopes for him, even though there are few really poor people any more. You see, this party hopes for a protest vote on the part of husbands. They always feel poor.

Fred Proehl, an Edmons (Wash.) greengrocer, is the standard-bearer of the Greenbacks. This fellow we'd like to meet.

Believe it or not, a Taubeneck (remote uncle) helped organize the Greenback party, and was elected to Congress on that ticket some 90 years ago. Hand-in hand with another thrice-removed relative, Senator Cockrell from Missouri, this renegade kept Congress in quite a stew for a few years.

Oh, yes. Almost forgot. The Socialists are getting ready for their convention in Chicago.

Tennis, anyone?

WAGNER ELECTRIC MOTORS...THE CHOICE OF LEADERS IN INDUSTRY



New headquarters building of Rotary International at Evanston, Illinois

Wagner Motors provide quiet circulating pump power at new headquarters of Rotary International

Electric motors that drive heating system pumps need plenty of electrical and mechanical stamina to hold up under the hard, steady grind expected of them. And, they must be unusually quiet, too. Wagner Motors assure this kind of reliable service—and quiet operation.

That's why Bell & Gossett Company, manufacturers of Hydro-Flo Circulating Pumps, chose Wagner Motors for their Universal Pumps used in the new Rotary International Headquarters at Evanston, Illinois.

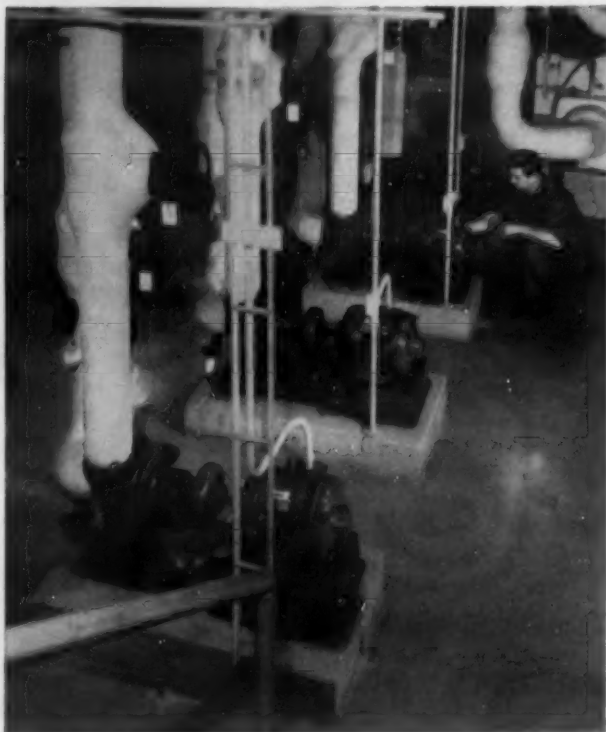
Part of this installation is shown at right. The motors in the foreground are 7½ horsepower, quiet-type Wagner Polyphase Motors, especially selected for smooth balance and quiet operation. The other motors in this installation are standard, resilient mounted 5 horsepower Wagner Polyphase Motors.

Here's where you can take a tip from Bell & Gossett... when you need dependable, quiet motors—5 horsepower or below—choose Wagner resilient mounted standard motors.

They are available with resilient bases in both sleeve and ball bearing types. You save money—and get the quiet operation that only a specially selected or resilient mounted motor can give.

Perhaps you have a specialized motor application... if so, remember, there's a Wagner motor to fit every need... a complete line for all current specifications with a wide variety of enclosure types and mountings.

Your nearby Wagner engineer can help you select the right motor to meet your specifications. Call the nearest of our 32 branch offices or write us.



These Wagner standard motors, in ratings up through 5 horsepower, can be used for specialized applications because they are available in sleeve bearing or ball bearing models with rigid or resilient mounts.

Wagner Electric Corporation

6441 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES



ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS-AIR AND HYDRAULIC

For more information about products advertised on this page use Information Center, page 22.

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REYNOLDS
ALUMINUM
FABRICATING SERVICE

...for the
production
of appliance
parts with

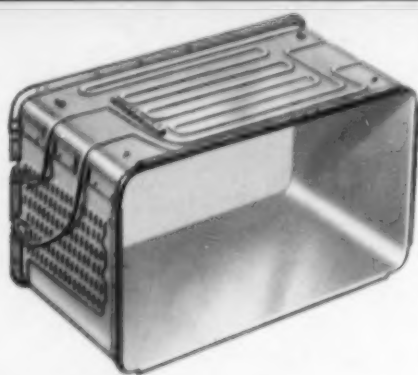
the FINISH
you want
and the COLOR
you want

All-Aluminum Refrigerator Door—
embossed and color anodized



Aluminum parts like these combine the
newest in beauty and styling
with the latest in engineering...

...and parts like these assure
added sales appeal and
product quality when you
rely on Reynolds for the
fabrication, the finish
and the color.



Tubed Sheet One-Side-Flat Refrigerator
Evaporator—gold anodized



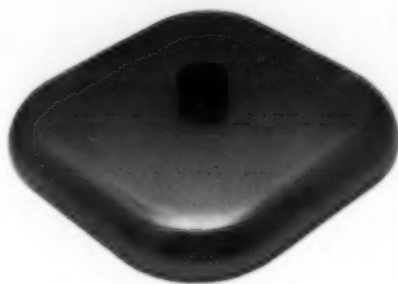
Tubed Sheet One-Side-Flat Refrigerator
Evaporator—blue anodized



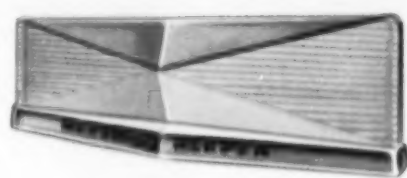
Tubed Sheet One-Side-Flat Refrigerator
Evaporator—copper anodized



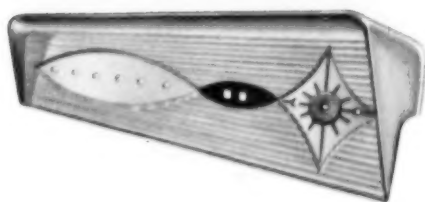
Refrigerator Evaporator Door Handle
— blue anodized



Fry Pan Cover—copper anodized



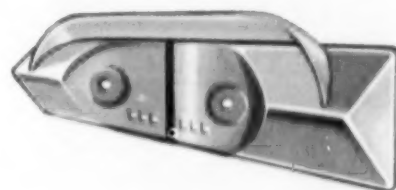
Refrigerator Beverage Keeper Door
— gold and blue anodized



Range Panel—gold and blue anodized,
black painted



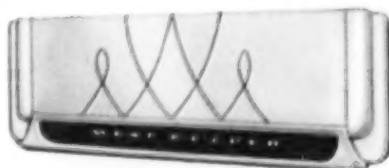
Portable TV Cabinet—copper anodized



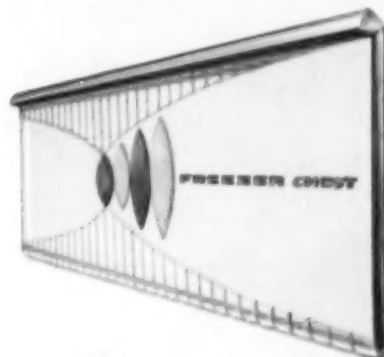
Washer-Dryer Panel—gold and blue anodized



Refrigerator Evaporator Door—copper anodized

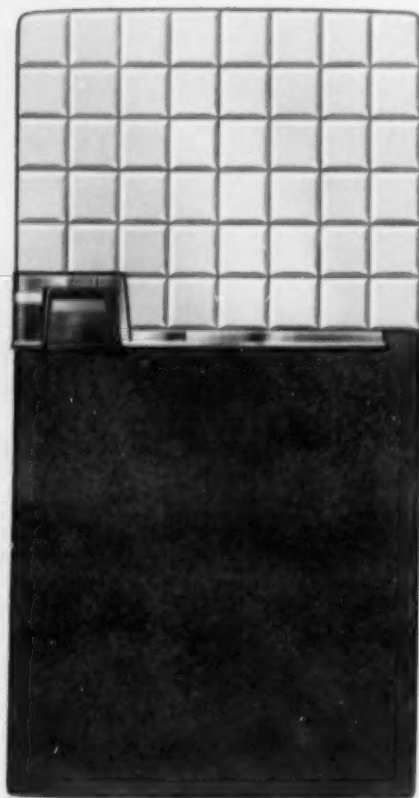


Refrigerator Meat Keeper Door
—gold anodized, black painted



Refrigerator Evaporator Door
—gold and blue anodized, white painted

Here's why it pays to rely on
REYNOLDS ALUMINUM FABRICATING SERVICE
for production of quality appliance parts



All-Aluminum Refrigerator Door—
color anodized.
Door Cap—clear anodized



VAST FABRICATING FACILITIES, experienced design and engineering assistance and quality control from mine to finished product are three good reasons why it pays to rely on Reynolds Aluminum Fabricating Service for production of aluminum appliance parts.

And—Reynolds can supply these parts with the *finish* you want and in the *color* you want because Reynolds greatly expanded finishing facilities are unsurpassed anywhere. Reynolds tremendous investment in today's latest automatic finishing equipment assures you finer finishes on the aluminum parts you design . . . gives you new flexibility in your design thinking. And Reynolds years of technical experience with practically every finishing process and technique applicable to aluminum go hand in hand with these facilities.

- Rely on Reynolds for *color anodized* finishes in gleaming colors of your choice—in-the-metal finishes that will never pit or chip or flake or tarnish.
- Rely on Reynolds for *clear anodized* finishes with the mellow luster and the "look of sterling".
- Rely on Reynolds for many other mechanical, chemical and paint film finishes on your aluminum parts.

For the highest quality from "start to *any finish*", let Reynolds fabricate and finish your aluminum parts.

For full details on Reynolds fabricating and finishing facilities, contact your nearest Reynolds Branch Office or write *Reynolds Aluminum Fabricating Service, 2001 South Ninth Street, Louisville 1, Kentucky.*

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**BLANKING • EMBOSsing • STAMPING • DRAWING • RIVETING • FORMING
ROLL SHAPING • TUBE BENDING • WELDING • BRAZING • FINISHING**

Tenants To Pay Yearly Fee for Office Cooling

CHICAGO—When a central air conditioning program was initiated at the 22-story Jackson-Franklin office building here 2½ years ago, it required a selling job among tenants. In the last year, however, tenants themselves have taken the lead in promoting the program.

This was pointed out by John T. Hilborn, manager, in announcing that the building was scheduled to be 95% air conditioned by July under a million-dollar program now nearing completion. Carrier Corp., Western Ventilating Co., and other firms are supplying and installing the system.

Tenants pay 75 cents a square foot a year for air conditioning, Hilborn said.

According to figures compiled by the Building Managers' Association of Chicago, the downtown area, by the end of this year, will have four class A buildings completely air conditioned at the time of construction, 19 with complete conversion to central air cooling, and 77 with only partial or no air conditioning.

Conditioned Tractor Cabs Make Harvesting, Construction Easier

ULYSSES, Kan.—Life is being made more comfortable for the farmer and operator of field construction equipment.

Air conditioned tractor cabs are being made here by Ansel Mfg. Co. on a welding and fabrication line to produce tractor and combine cabs in quantity.

First displayed at the Industry-Implement-Irrigation Show at Dodge City, Kan., the air conditioned tractor cab attracted considerable attention, it was reported. It also was insulated, had radio and heater.

Eldon Ansel, owner of the company, said the cabs are becoming increasingly popular with people operating construction equipment as well as with farmers.

Starting his manufacturing firm after he developed his own combine cab enclosure to make harvesting more comfortable, Ansel now ships to more than 50 dealers located in the mid-west.

Roof-Centered Conditioner Has Electronic Controls, Replaces 40 Old Units

CINCINNATI — The John Shillito Co., downtown department store, claims the distinction of having "one of the first roof-centered air conditioners in the country."

An air conditioning "plant" has been installed atop the store. Two 900-ton centrifugal compressors are located on the roof. An electronic system controls the temperature in 36 thermostatically controlled zones in the store.

Company officials said the new system replaces 40 separate air conditioning units formerly used throughout the department store.

G-E Survey Indicates

Sale of 1,600,000 Central Cooling Systems of 2 Tons or over Seen In 1965

DETROIT—A General Electric survey indicates that the market for central home and commercial air conditioning units of 2 tons' capacity and above should reach 1,600,000 in 1965, with 240,000 of these being commercial store units.

Facts Revealed at Copeland Service Meeting

Survey findings were described at a Copeland Refrigeration educational service meeting held recently at the quarters of J. M. Ober, Inc., Copeland wholesaler. Charts showing survey results were discussed by A. E. Cadwell, Michigan representative for Copeland.

In addition to the market for residential and commercial air conditioning from 1955 to 1965,

the charts showed data on anticipated home building, average price range of homes installing air conditioning, average tonnage of central home air conditioning, and location of the potential market.

One chart indicated that the number of homes built is expected to drop from 1,200,000 last year to 980,000 in 1958 and then rise to 1,300,000 in 1962 and 1963 and to 1,400,000 in 1964 and 1965.

Air Conditioning Will Go Into Cheaper Homes

Another showed the average price range of homes installing air conditioning declining from \$19,000 in 1954 to \$16,500 in 1956, \$15,000 in 1958, \$12,500 in 1959, and \$12,000 in 1960.

According to a third chart, the average tonnage of central home air conditioning should increase to 3.2 this year from 2.6 in 1954. It is expected to decline to 2.8 in 1957 and then rise to 3 in 1958, 3.25 in 1959, 3.5 in 1960, and continue up to 3.75 in 1964 and 1965.

Some of the figures on the total anticipated market for central home and commercial units of 2 tons' capacity and above are as follows, with the commercial store market in parentheses:

1956—320,000 (125,000); 1957—375,000 (130,000); 1959—650,000 (160,000); 1961—930,000 (180,000); 1963—1,260,000 (220,000); 1965—1,600,000 (240,000).

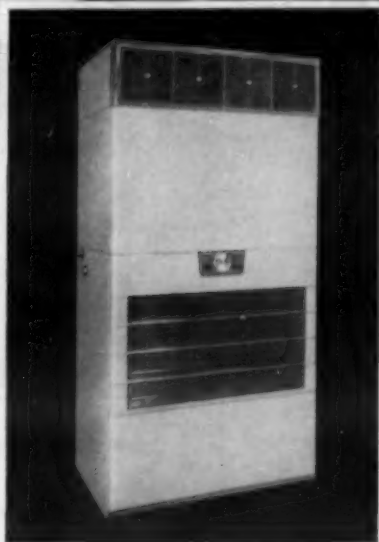
The final chart shown at the

meeting contained figures on geographical location of the potential market in 1950, 1955, and 1960.

This chart showed the southwestern area's percentage of the total market dropping from 42% in 1950 to 30% in 1955 and to 24% in 1960. It also indicated that the southeastern section would account for only 8% of the potential market in 1960, compared with 14% in 1955 and 30% in 1950.

On the other hand, the mid-Atlantic area is expected to account for 22% of the potential market in 1960, against 17% in 1955 and 6% in 1950. The east central region's percentage is also expected to rise to 22% by 1960 from 15% in 1955 and 7% in 1950.

THEY'RE ALL YOUR PROSPECTS WITH JOB-MATCHED YORKKAIRE CONDITIONERS



18 models from 1½ to 15 hp - water cooled and air cooled (waterless) - can be installed outside air-conditioned space, side-by-side for large areas, out-of-doors or off-the-floor.

Hotel, restaurant, factory or store—business or professional building—one floor or many—all are hot prospects when you sell job-matched Yorkaire Conditioners with exclusive Hi-Ef Cooling!

Yorkaire Packaged Conditioners can be tailored to your customer's exact requirements. They keep pace with his expanding needs. When he moves, they move right along with him.

York's exclusive Hi-Ef Cooling gives you another big selling advantage: Hi-Ef means high efficiency, greater economy of operation—up to 12% more cooling capacity with no increase in power consumption!

SELL THE QUALITY LEADER . . . SELL YORK!

Don't miss out on York's Big 4—four dynamically new selling approaches that expand your selling season from a few months to the entire year! Find out how York's sensational new training program can open the door to big profits for you. Mail the coupon for full details.



the quality name
with the
quantity profits

Manager of Sales, Commercial Division, Dept., AC-7.
York Corporation, York, Pa.

☐ Tell me how job-matched Yorkaire Conditioners and York's Big 4 will put new life in my profit picture!

☐ I'm interested in York's new training program.

Name _____

Company _____

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City _____ Zone _____ State _____

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors (4)

On these two pages, the NEWS presents the final installment of a discussion by T. N. Schierloh, service technical manager of General Motors' Delco Products Div., on servicing refrigeration and air conditioning motors. A comprehensive treatment of the subject, the material has been presented before RSES groups.

By T. N. Schierloh, Service Technical Manager, Delco Products Div., General Motors Corp.

The last disease, "overload," is common in the refrigeration industry because of two factors:

1. Many installations are operating under heavier loads than originally designed for.

2. There appears to be a general misunderstanding as to what constitutes an overload, especially on compressor applications.

Since compressor motors are expected to carry temporary loads beyond their nominal rat-

ing, the only way to make sure of correct loading is to measure the actual wattage input and refer to the equipment manufacturers service manual.

The result of overload is overheating which increases as the square of the excess current of overload.

There are two important protective maintenance rules about overload; the first one is a "do":

1. Always take time to find the actual causes of the overload and take nothing for

granted.

The second rule is a "don't":
2. Don't (but never) increase the value of the overload protectors without first consulting the manufacturer.

The third phase of our education is diagnosis or trouble-shooting and here is where we separate the men from the boys! You might be able to bluff or talk your way into a job but when you have to come up with the correct answer—and fast—there is no substitute for "know-how."

Records, Instruments, And Procedure

You will need three friends on hand at all times and they are, in the order of their appearance: (1) Records, (2) instruments, (3) procedure.

One of the most valuable assets a service organization can have is good records, and none is as valuable as the "case history" type card. The benefits of this type of record are four-fold:

1. It makes us take the time to record an accurate report on the service call, in writing, while the details are still fresh in our minds.

2. It makes the next service call easier and more efficient when all former history is known about the installation or similar equipment.

3. It provides valuable data in the event of extended warranty litigation or adjustments.

4. It helps us make recommendations to the customer for future protective maintenance and service programming.

Every mechanic knows the value of the right tools for the job, but there are evidently still a lot of "hot pilots" trying to fly by the "seat of their pants" instead of instruments.

Servicemen Should Have Right Tools and Know How To Use Them

We are no longer impressed by a doctor who bases every diagnosis on having you stick out your tongue, neither is your customer satisfied when a mechanic appears on the job without proper diagnostic tools. The responsibility of the service engineer is to select the proper tools—then see that they are

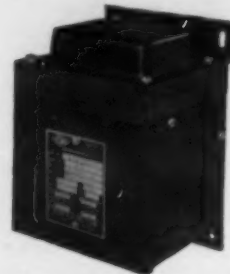
used.

The third step in diagnosis is procedure and here again we find a lot of "blind flying" and jumping to conclusions. The electric motor is such an obvious thing—it's running hot—

it's blowing fuses—it won't start or accelerate properly—it's making strange noises. Well what are we waiting for—that's the trouble—yank out the motor!

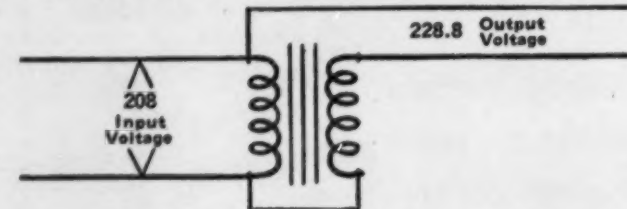
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THESE BUCK & BOOST TRANSFORMERS



MAY HELP YOU SELL MORE AIR-CONDITIONING EQUIPMENT

Many air conditioning installations in older buildings have been postponed due to the cost of supplying adequate electrical facilities. Now, in most cases, this problem is solved with an Acme Electric Buck and Boost transformer. When connected to the existing low voltage electrical source, voltage can be boosted to exactly meet the requirements of the modern air conditioning equipment, often without any extensive rewiring.

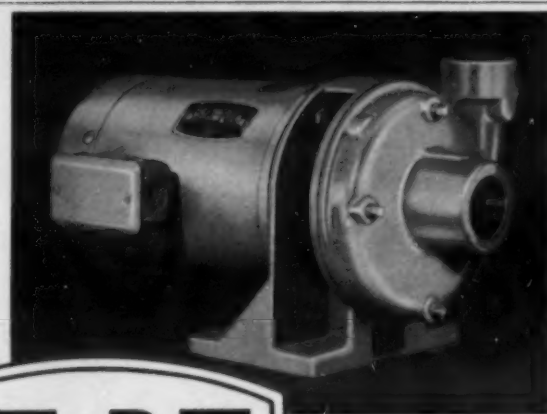


The Boost and Buck transformer is essentially a 4 winding insulated type transformer with tap connections to permit interconnection of primary and secondary windings to boost or reduce voltage to meet the needs of the power requirements.

For catalog giving detailed methods of application write for Bulletin BB199.

ACME ELECTRIC CORPORATION
927 WATER STREET CUBA, N. Y.

Acme Electric
TRANSFORMERS

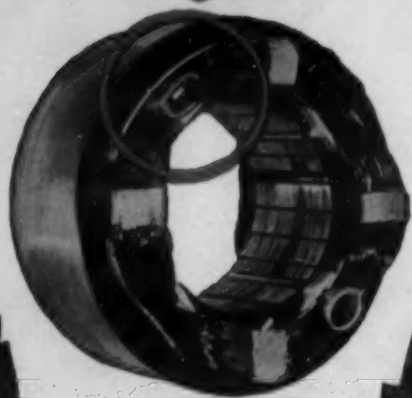


STA-RITE the ONE pump designed to cut costs of AIR CONDITIONING INSTALLATION AND MAINTENANCE

You and your customers get more for your money with Sta-Rite. First cost is usually lower than comparable pumps. More—check cost per gallon delivered. Cost of installation. Cost of maintenance. Yes, and check cost against the expected life of the pump. Sta-Rite pumps give you clear-cut superiority. You see it the way we make bronze impellers, the full-power, ball-bearing, capacitor-type motors, the leak-proof mechanical seal, the one-piece corrosion-resistant shaft.

Ask your wholesaler. Also write for copy of new bulletin describing Sta-Rite Air Conditioning Pumps.
STA-RITE PRODUCTS, INC.
701 S. Eighth Street, Delavan, Wisconsin
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In Canada: STA-RITE Pumps (Canada) Ltd., Ajax, Ont.

THIS MOTOR IS PROTECTED AGAINST BURN-OUT WITH



When a MIGHTY MITE is protecting your motor, it can never be subjected to excessive operating temperatures because of overload, voltage variation, or other causes. MIGHTY MITE gives you continuous and automatic protection against charring of insulation and burn-out. These thermal protectors let you produce a truly safe motor for safer products, and they can be a great aid in today's competitive selling. If you buy motors—specify MIGHTY MITES. MIGHTY MITES are furnished as small as 1 1/4" long x 3/4" wide for motors up to 1/4 H.P., 115/230 volt a.c.

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INQUIRIES AND PARTS ORDERS FOR

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UNIVERSAL DIVISION
THE HORTON COMPANY
915 Liberty Ave., Pittsburgh 22, Pa.

Motor Servicing--

(Concluded from preceding page)

Here I would like to quote the opening statement of the new electric motor test and repair section of the RSES Service Manual: "A very large percentage of 'motor trouble' doesn't exist; that is, the trouble is not in the motor at all." I can hear every motor manufacturer's service manager in the country breathe a fervent "amen," and "thank you."

We are not entertaining a delusion of perfection or infallibility, but the cold fact remains that almost 90% of our field service engineers' reports indicate the trouble is usually not in the motor. And although this may seem elementary to most of you, our reports show one or more of these five important factors have been overlooked:

5 Important Factors

1. The motor has been improperly connected (new installations, mostly).

2. No check has been made of the motor terminal voltage at start and full load.

3. No reading has been taken of the motor load in watts or the current in each leg of poly-phase circuits.

4. No continuity check has been made through the system's protective devices and controllers.

5. Surrounding temperature and moisture conditions have not been taken into consideration which might require a special motor.

There are other oversights, of course, and you are probably thinking of a couple in your own experience. So, when we make the above checks a regular procedure, we are eliminating the cause of the greatest number of motor complaints. Another thing experience has taught us—when you service a "burn-out," be doubly sure you have correctly diagnosed it.

We're now ready to complete our education with the fourth and last phase—what therapy or surgery will get the equipment back in service in the *shortest* amount of time and at the *least* expense.

There is no substitute for absolute honesty with the customer at this point. This is not a business of trading labor and parts for money, it is service with integrity that alone can survive competition.

In this phase of the business, three important factors enter: Time—Cost—Experience.

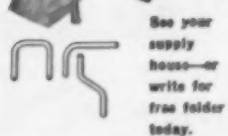
These factors determine: (1) Repair or replace? (2) On the job repair—or shop repair?

Handy Tube Bender

Smoothly Bends any pipe or Tubing $\frac{3}{8}$ "-1 $\frac{1}{8}$ " O.D.



Just a twist of the wrist assures perfect, even bends—right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER.



See your supply house—or write for free folder today.

HOLSCLOW BROS., INC.

428 N. Willow Road • Evansville, Indiana

We must know what minor motor repairs can economically be made on the job. Generally speaking, these repairs cannot go beyond replacement of capacitors, relays, thermal protectors, brushes, and switches.

The only economical way to handle major motor repairs is to make use of a completely equipped motor repair station using factory replacement parts.

That may sound like a "commercial"—and it is—but if you haven't had a sad experience with an inadequate shop or with imitation (translated "gyp") parts, you either haven't been in business very long or you are unusually lucky.

And finally, in this, as in any type of service business, remember that an inadequate stock of service replacement parts can stymie you.

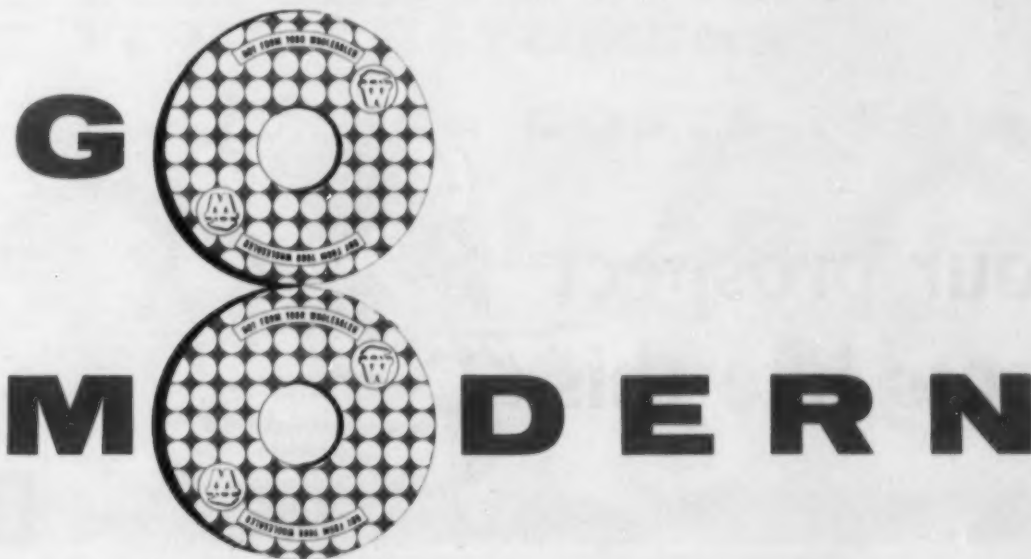
(The End)

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DAYTON 1, OHIO

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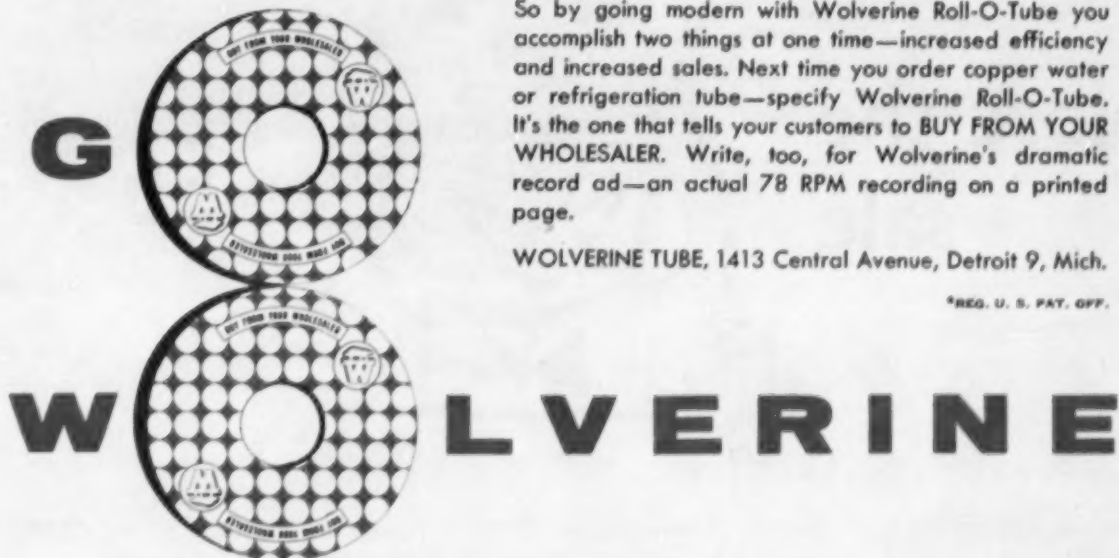
When you stock Wolverine Roll-O-Tube* you are capitalizing on all the advantages of the industry's most modern and efficiently packaged copper tube.

Wolverine Roll-O-Tube works for both you and your customers. Because it is super-thin it helps you conserve valuable storage space. Because it can be rolled like a hoop or easily carried by its convenient center hole, it speeds up handling time. Your customers like Wolverine Roll-O-Tube for these reasons plus its easy content identification, simplified gum tape opening, use as a reel and the way it protects unused tube.

So by going modern with Wolverine Roll-O-Tube you accomplish two things at one time—increased efficiency and increased sales. Next time you order copper water or refrigeration tube—specify Wolverine Roll-O-Tube. It's the one that tells your customers to BUY FROM YOUR WHOLESALER. Write, too, for Wolverine's dramatic record ad—an actual 78 RPM recording on a printed page.

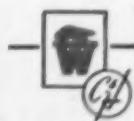
WOLVERINE TUBE, 1413 Central Avenue, Detroit 9, Mich.

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For more information about products advertised on this page use Information Center, page 22.

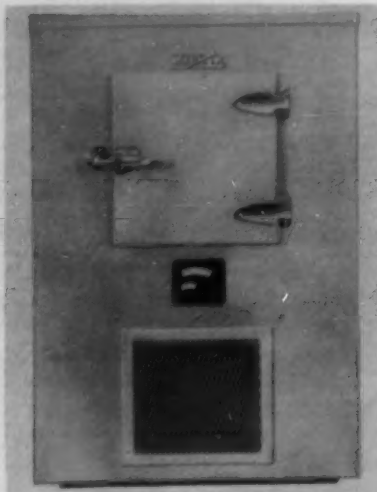
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TO LAST
LONGER!

NOLIN
MANUFACTURING COMPANY
1400 LLOYD ST. PH. 3-4454
MONTGOMERY, ALABAMA

Webber Chamber Tests Electronic Components



—KEY NO. F-7110—
INDIANAPOLIS—Webber Engineering Corp. recently offered model WE-2-140 low temperature cabinet designed for testing electronic components, cold treatment of metals, thermal contraction, and expansion fitting.

Model comes with either top

lid or front full opening door, with triple sealed gasketing. A baffle is incorporated in the lid model to prevent loss of temperature when the lid is raised, the company noted.

The inside stainless steel chamber dimensions are 22½ by 12 by 13 in.

A visible type adjustable heavy-duty industrial type temperature control with range from -150° to 150° F. and claimed accuracy of plus or minus 1° is a feature.

Odor Removing Adhesive Sprays on Filter

—KEY NO. F-7111—
MADISON, Wis.—Research Products Corp. here recently announced development of a new odor-removing adhesive for use on the firm's washable filters.

"Super Filter Coat" is packaged in a metal container, comes complete with sprayer. The adhesive performs the function of removing dirt, dust, and odors from air.

Master-Bilt Announces Towers In 15-50-Ton Range



—KEY NO. F-7112—

ST. LOUIS—A line of cooling towers in 15, 20, 25, 30, 40, and 50-ton sizes has been introduced by Master-Bilt Refrigeration Mfg.

Co. here, it was announced.

Master-Bilt will continue to manufacture smaller towers of 3, 5, 7½, and 10-ton capacities, "providing a completely rounded selection for a variety of commercial and residential air conditioning applications."

"A distinctive feature of the new line is a recessed fan venturi, providing a more compact, pleasing appearance," the company said.

Other features include removable redwood decking; propeller-type fan with 44° pitch, V-belt driven and with motor pivot-mounted for easy adjustment of belt tension; exterior lubrication fittings; and adaptability to indoor or outdoor installation.

'Snip-It' Filter Fits Any Window Conditioner

—KEY NO. F-7113—
HOUSTON, Texas—C.L.B. Co. here recently offered a new "Snip-It" filter which is claimed to fit all window-type room air conditioners.

Made of natural vegetable material, treated and bonded to form a uniform pad of correct density for maximum collection of dust particles, the filter can be cut to fit any room air conditioning unit, the firm stated.

Rigidity of its frame eliminates frame requirement and allows installation without any supporting device, it was noted. A tight fit is not necessary; air is filtered all the way to the edge.

Snip-It comes in one size—15 by 24 in. The user removes his present filter, scores and cuts Snip-It to the required size and installs it, the company said.



Snip-It filters are easily cut with scissors, shears, or knives to the required shape, the manufacturer further declared.

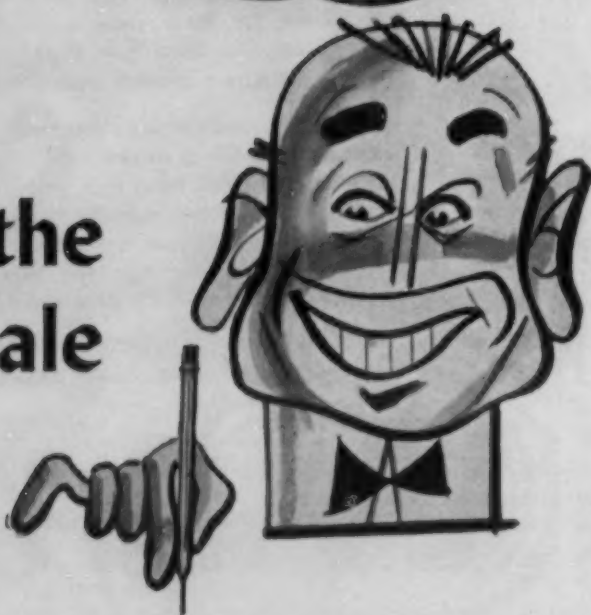
If your prospect
acts like this



suggest
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to close the
sale



TODAY the demand on working capital is heavy. Preferring to keep their cash and usual lines of credit intact for current operations, more and more of your prospects will want to finance their purchases of equipment. Be sure your proposals are complete by including information about buying on the nationally

popular **COMMERCIAL CREDIT PLAN**. To discover how **COMMERCIAL CREDIT'S** tailor-made Refrigeration Financing Plan can help you build prestige and close sales, call our office in your city or write **COMMERCIAL CREDIT CORPORATION**, 14 Light Street, Baltimore 2, Maryland.

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Products Advertised

(list name, page, and issue date)

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Key No.	Key No.
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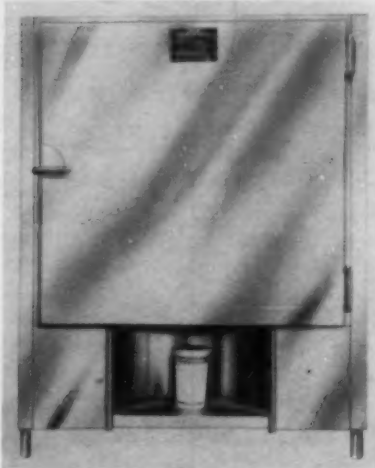
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DETROIT 26, MICHIGAN



Can Cart Eases Handling To Milk Dispenser

—KEY NO. F-716—

EVANSTON, Ill.—A new milk can cart designed to facilitate handling and minimize lifting of bulk milk cans was recently announced here by Meterflo Dispensers.

The new cart transports 5 or 10-gal. dairy cans from storage room or truck to dispenser, the firm stated. At the dispenser the milk can is raised by means of a roller-type elevator. A few turns of the hand crank moves elevator and can upward for can positioning in dispenser cabinet, it was added.

6½-Ft. Bobtail Soda Dispenser Developed

—KEY NO. F-717—

WATERTOWN, Mass.—A newly-designed line of soda dispensing units including a 6½-ft. bobtail constructed of all-steel welded frame with die-stamped stainless steel work top and front is announced by United-American Div., Lewis-Shepard here.

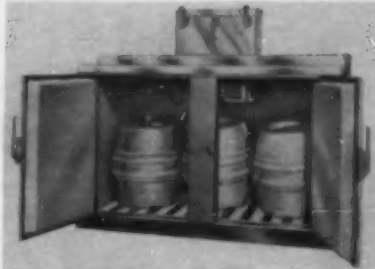
Fully insulated with pure vegetable corkboard, the new unit is equipped with draft station having one soda and one water arm, six stainless steel syrup pumps with porcelain jars (one a choco-



late type), five crushed fruit jars with covers and ladles, and a spoon vat.

The stainless steel lined storage compartment is fully refrigerated with access from the work top by two hinged covers, one of which also gives access to a chipped ice pan. There are three seamless, deep-drawn sinks, each 9 by 14 in. with overflow drains, hot and cold water swivel faucet, and removable panel under the sinks. A stainless steel running water disher vat and a refuse chute with container are located at right.

Work top is 33 in. high.



Draw Tap Dispensing Apparatus Redesigned

—KEY NO. F-718—

HUDSON, Wis.—Redesign of the dispensing apparatus into an insulated dome and relocation of the waste drain are two of many changes made in the expanded 1956 line of direct draw taps manufactured by Nor-Lake, Inc. here.

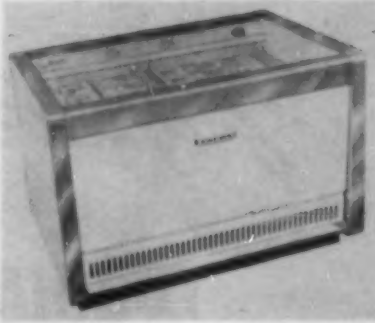
"Beer faucets and optional water station are mounted in the stainless steel dome, which utilizes the cabinet temperature and air circulation (not mechanical means) to refrigerate the beverage lines up

to and including the faucet heads," the company said.

"The waste drain, a 1½-in. brass tube, has been raised to 18 in. above the floor to permit installation of drain traps when through-the-floor plumbing is not practical.

"Entire interior and faucet refrigerating apparatus are cooled by a heavy-duty two-way blower coil which automatically discharges condensate drain into the drain plumbing," it was stated. "Galvanized steel barrel skids and door sills are provided."

A complete set of tapping equipment is included, while water coil and faucet are optional.



Warren Offers Frozen Food Merchandiser

—KEY NO. F-719—

ATLANTA — Recently introduced by Warren Co., Inc. is a self-contained 5-ft. "Island Master Merchandiser" for frozen foods.

With 11 cu. ft. capacity, the merchandiser can accommodate 560 standard 5¼ by 4 by 1½ in.

packages, seven packages from front to back, and eight packages deep, the company said.

Model IL-5 features acid-resistant porcelain in what is termed sales-stimulating colors. Trim is plain rigidized stainless steel with 3½ in. price rails on both sides, acid-resistant porcelain interior, and ends have heater strips to prevent accumulation of moisture at these points, according to the firm.

Compactly housed in the bottom of the unit, the 1-hp. condensing unit slides out for adjustments. Automatic electric defrosting is standard on the merchandiser.

CUT YOUR CUSTOMERS' ICE COSTS FROM DOLLARS to DIMES



...and give them complete

2 in 1

ICE SERVICE

You can prove it to your prospects' complete satisfaction: "Crystal Tips or Chips Automatic Ice Makers save up to 90% on the costs of delivered ice. The famous 2-in-1 feature gives you Tips in 'cube' size, or by the turn of the knob, Chips in crushed ice size. All the most advanced engineering features are built into this compact, smartly designed unit—quiet operation, full 24-hour storage bin capacity, and a simplified mechanism assuring long trouble-free operation." Territories are available. Write for information.

Crystal Tips or Chips

AUTOMATIC ICE MAKER

AMERICAN AUTOMATIC ICE MACHINE CO.

1787 Fourth Street N. W., Faribault, Minn. • A Subsidiary of McQuay, Inc.

IN CANADA, ADDRESS: PIONEER APPLIANCE SERVICE, LTD., BOX 181, WESTON, TORONTO, ONTARIO

"My Typhoon District Manager helps me figure complex jobs competitively and profitably," says Steve Filippone (left), Typhoon's Jersey City dealer.



Most Profitable FACTORY-DEALER TEAM SET-UP IN THE BUSINESS

TYPHOON
AIR CONDITIONING

- Commercial Air Conditioners, 2 to 30 tons
- Air Cooled or Water Cooled Condensers
- Residential Year-Round Units
- Packaged Heat Pumps, Residential and Commercial

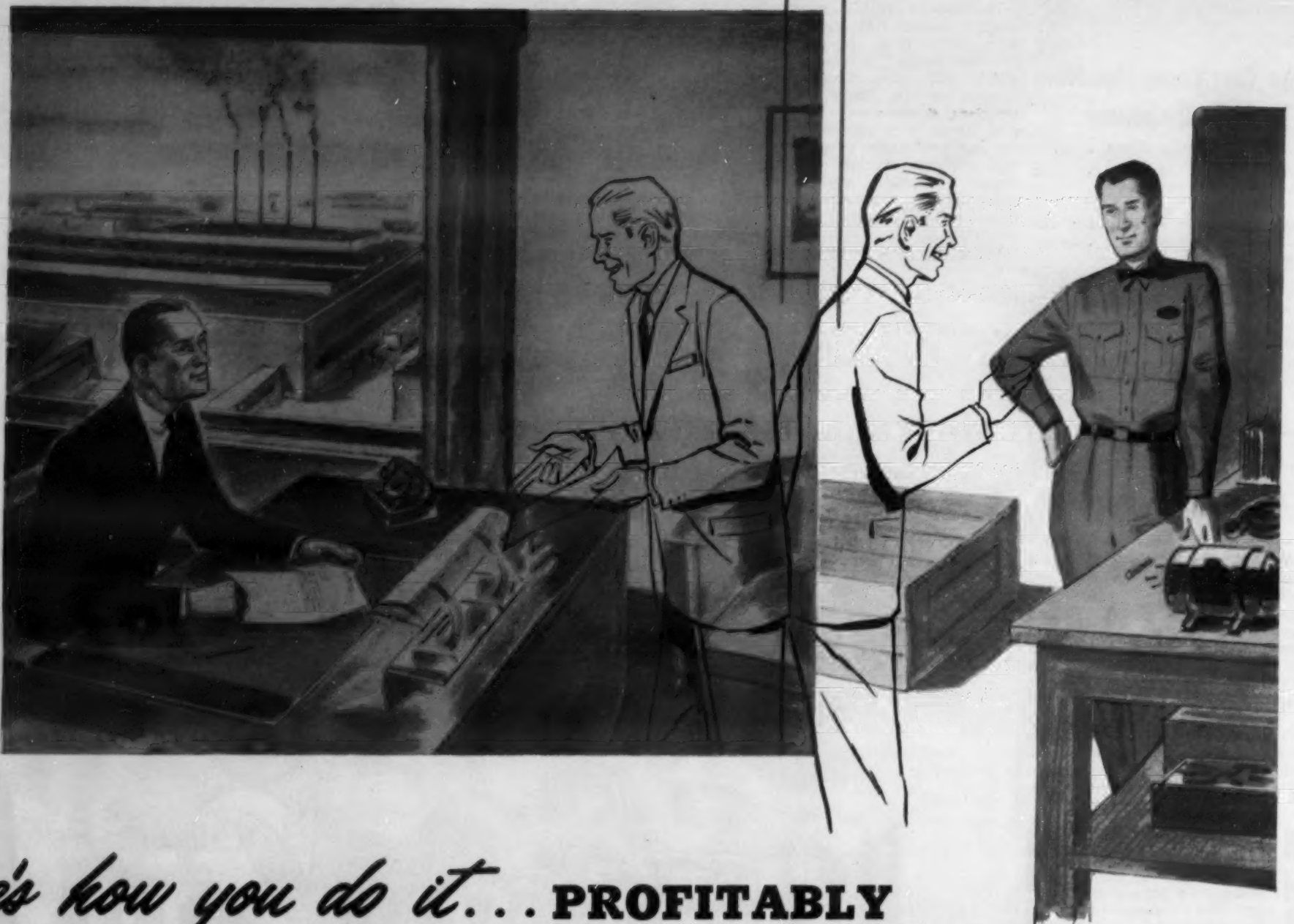
Find out how a Typhoon Direct Factory Franchise can make money for you. Send in this coupon today.

Typhoon Air Conditioning Co., Inc., 505 Carroll Street, Brooklyn 15, N. Y. Tell me about a Typhoon Franchise in my territory. Send me bulletin A-12.

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

If you're selling replacement parts...

YOU HAVE TO BE TWO PLACES AT ONCE !



here's how you do it... **PROFITABLY**

IN THE AIR CONDITIONING, HEATING, AND REFRIGERATION INDUSTRY

You sell the manufacturer. He's the man who can specify your product as original equipment and build automatic replacement parts volume. More manufacturers by far subscribe to, read and clip AIR CONDITIONING & REFRIGERATION NEWS than any other publication in the field. (A recent readership study of O.E.M. manufacturers reveals 93% of their executives read the NEWS). What better place to tell your selling story!

You sell the contractor and serviceman. They are the men who can order your product as a replacement part for the equipment they service. They, too, subscribe to, read and clip AIR CONDITIONING & REFRIGERATION NEWS. In Detroit, for example, 66% of dealer-contractors (who make 84.5% of all air conditioning and refrigeration installations) are paid subscribers. Again, what better place to put over your sales story!

To do your *first* selling job in *both* places where the *first* selling job is being done in *both* places—look *first* to the NEWS.

**AIR CONDITIONING
& REFRIGERATION**

The Newspaper of the Industry

NEWS

THE NEWSPAPER THAT CARRIES MORE
ADVERTISING BY FAR THAN ANY
OTHER PUBLICATION IN THE FIELD.

450 West Fort Street, Detroit 26, Michigan

NEW YORK, 521 Fifth Ave., MUrray Hill 7-7158, Robert M. Price.

CHICAGO, 134 S. LaSalle St., FRanklin 2-8093, Allen Schildhammer.

LOS ANGELES, 4710 Crenshaw Blvd., AXminster 2-9501, Justin Hannon.

DETROIT, 450 West Fort St., WOodward 2-0924, J. B. Sullivan.



Nor-Lake Expands Plant, Personnel In Commercial Field

HUDSON, Wis. — Completion of a plant expansion program, addition of three field representatives, and the promotion of four men at the Nor-Lake factory here were announced recently by Harry J. Blakeman, president of the refrigeration equipment firm.

Warehouse space was increased by 32,000 sq. ft., plant facilities were upped by 15,000 sq. ft., and office space was tripled, all at a cost of about \$130,000.

The expansion program was undertaken to increase the production potential and to improve service to customers, it was pointed out.

Representative appointments include: Bert W. Muller, New York State; Tom Connolly, New England states; and P. G. Thornley Co., Ltd., in Canada. The latter appointment gives Nor-Lake complete Canadian representation for the first time in company history, it was pointed out.

Promotions were: Kenneth D. Cameron, from superintendent to plant manager; Leonard V. Skalicky, from engineering consultant to chief engineer; Harlan J. Huftel, from refrigeration department to assistant sales manager; and Virgil Becker, from material control superintendent to purchasing agent of the firm.

Fogel Refrigerator Appoints S. J. Siegel

PHILADELPHIA — William Fogel, president of Fogel Refrigerator Co., announces the appointment of Sidney J. Siegel as assistant national sales manager.

In this newly-created office Siegel will act as assistant to Henry Robinson, national sales manager, and will be in charge of the sales department at the home office during Robinson's inspection trips throughout the country.

Siegel continues as sales manager of the newly-formed Fogel Refrigerator Co.'s Shelving Div. This new department will include a complete "dry fixture" department.

D.W. Stearly Appointed Scotsman Distributor

ALBERT LEA, Minn. — The D. W. Stearly Co. of Evansville, Ind. has been appointed an exclusive franchised distributor in the Evansville area for the complete line of Scotsman ice making machines, it was announced by the American Gas Machine Co. Div. of Queen Stove Works, Inc. here.

U.L. & A.S.M.E. WATER-COOLED CONDENSERS and LIQUID RECEIVERS for EVERY REQUIREMENT

STANDARD REFRIGERATION CO.

332 S. Hoyne, Dept. C Chicago 12, Ill.

White for our NEW Catalog

They Won't Be Home (Plant Vacation Schedules)

The companies listed below have notified the NEWS that their plants and/or offices will shut down for vacations during the periods shown in the center columns.

The right hand column indicates whether the plant will continue regular shipments during the shutdown period, emergency shipments only, will ship stock items only, or will make no shipments at all.

When offices will operate with a skeleton staff during plant shutdowns that fact is noted in the "office" column.

This list applies to vacation shutdowns beginning

Prior to JULY 25

Plants with later vacation periods will be listed in coming issues of the NEWS. As the names below will not be repeated, we suggest you CLIP and SAVE this list for future reference.

Company	Shutdown Period		Shipments From Plant
	Plant	Office	
A-P Controls Corp.	7/14-7/22	None	Emergency
Combustion Engineering Co.	7/16-7/27	7/16-7/27	Emergency
Geauge Industries	7/23-8/4	7/23-8/4	Emergency
Kerotest Mfg. Co.	7/23-8/5	7/23-8/5	Stock Only
Marsh Corp.	7/20-8/5	7/20-8/5	Stock Only
Meier Electric & Machine Co., Inc.	7/19-7/28	7/19-7/28	Stock Only
Minneapolis-Honeywell Regulator Co.	6/30-7/13	None	Stock Items Only

Olsen Manufacturers	7/2 -7/16	None	Regular
Paragon Electric Co.	7/14-7/22	7/14-7/22	None
Philco Corp., Bedford Plant	7/14-7/29		None
Revere Copper & Brass, Inc.			
Chicago Foil Plant	7/22-8/5		Stock Items Only
Velocity Power Tool Co.	7/22-8/5	7/22-8/5	Emergency
Victor Products Corp.	7/1 -7/8		Emergency

Listing of additional plants with vacations starting prior to July 10 appeared on page 34 in June 25 issue of the NEWS.

Jordan Promotes DiTullio, Maguire

PHILADELPHIA — Joseph DiTullio has been named chief refrigeration engineer and George Maguire director of personnel of Jordan Refrigerator Co., Inc. here.

DiTullio, who joined Jordan in 1947, was formerly a project engineer.

Maguire, at Jordan since 1952, is a graduate of the University of Pennsylvania and a former instructor.

Universal Supply To Handle Manitowoc Line

MANITOWOC, Wis.—Universal Supply Co., Inc. was recently appointed Kansas City, Mo. to Topeka, Kan. area distributor for the full product line of Manitowoc Equipment Works, according to Tom Hannon, general sales manager of the local refrigeration equipment maker.

E. F. Lewis is president of Universal which will handle 2-Zone, combination freezer-refrigerators, and upright freezers of the Manitowoc line.

Man, this Paragon time switch has everything

3-WAY DEFROST VERSATILITY
HEAVY-DUTY, INDUSTRIAL TIMING MOTOR
1-PIN COMPLETES CYCLE



All yours when you install Paragon 300 MB series time switches—for ALL COMMERCIAL DEFROSTING

That's right — every time you install a Paragon 300 MB series time switch, you're offering complete defrost protection . . . more customer-pleasing features proved necessary for greater profit per job!

The 300 MB is a "natural" for all refrigeration equipment where the defrost period is less than two hours. Use it for compressor shutdown, hot gas or reverse cycle and electric heat systems. It's a key part of the equipment you use when you convert a system with no means of defrosting.

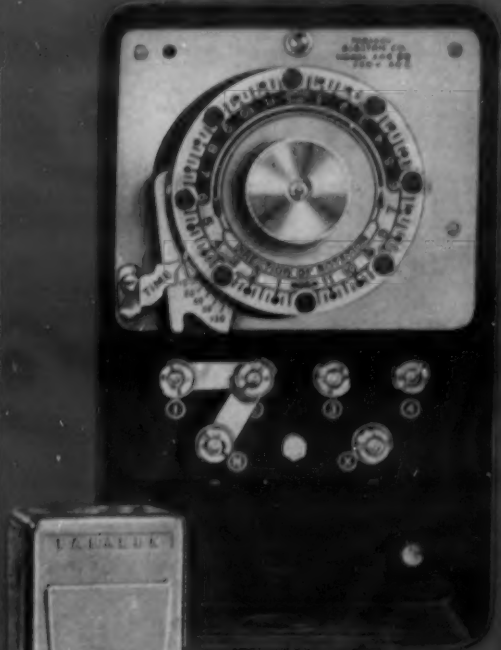
One pin is all that is necessary to complete the cycle . . . period can be adjustable from 15 to 120 minutes, for 1 to 8 cycles per 24-hour day.

Consider too, the heavy-duty, industrial-type 4-watt timing motor. Here's ruggedness in reserve — well beyond normal service demands.

It's smart business to stock 300 MB'S



Keep a supply of 300 MB'S on hand for emergency service. It's a simple precaution that will pay big dividends. Order from your wholesaler, or write Dept. 1687.



Convenient terminal bridges are readily removable if necessary to isolate clock motor from either of both switch contacts.

Two basic types: 30 amps per pole, 120 and 240-v, 60 cycle — in DPST and SPST switches.

Handsome baked-enamel case.



PARAGON

ELECTRIC COMPANY

Two Rivers, Wisconsin

WORLD'S FOREMOST MANUFACTURER OF TOP-QUALITY TIME CONTROLS

In Canada: Automatic Electric Sales (Canada) Ltd., Toronto

Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers



Comparison of Refrigerants 12 & 22

(Continued)

A gasket material should not be affected by the refrigerant or oil, but there is a difference between 12 and 22 as to their effect on certain gasket materials, such as the synthetic rubbers. Buna N is quite suitable for 12 but softens and swells excessively with 22.

On the other hand, Polysulphide, Type GR1 is not suitable for 12 although it is satisfactory for 22. Neoprene Type GN is satisfactory for either, but natural rubber is unsatisfactory for either.

Another factor that may affect high side leaks is that the compressor discharge temperature is much higher with 22 than 12. This may have some

softening effect on gaskets and solder, and may increase the difference between 12 and 22 in the likelihood of leaks.

COMPRESSOR DISCHARGE TEMPERATURES

And now we come to a very important difference between 12 and 22; the temperature of the compressor discharge. When the gas leaves the compressor, it is and should be, hot, for it has had work done on it. It is not only carrying all of the heat removed by the evaporator, and the superheat picked up in the suction line, but also the heat of compression.

The discharge temperature is affected by the condensing and evaporating pressure and by the superheat in the suction gas entering the compressor. If the head pressure is raised or the suction pressure is lowered, either of which results in a

higher ratio of compression, the discharge temperature rises.

Also, with the suction pressure remaining the same, an increase in suction superheat increases the discharge temperature.

Putting it another way, an increase in head pressure on a fixture, or a drop in suction pressure causes the hot gas to become hotter.

Moreover, at the same evaporator temperature or head pressure, a warming up of the suction gas by the time it reaches the compressor, results in a higher discharge temperature.

It is no secret that there has been a good deal of trouble in the field with 22 particularly in the formation of what are generally referred to as sludges in the system—gummy deposits that stop up driers, expansion valves, capillary tubes, and oil passages and valve ports in the compressor, and foul up the system generally.

Sludges are caused chiefly by decomposition of the oil, by solubility of the motor insulation in the oil-refrigerant mixture under severe conditions, and by corrosion from acids in the system. In all three cases,

the sludge formation is greatly accelerated by high discharge temperatures. It is a general rule in chemistry that chemical activity is about doubled for every 18° F. (10° C.) increase in temperature.

WHAT IS THE MAXIMUM SAFE DISCHARGE TEMPERATURE?

Undoubtedly it depends upon the characteristics of the refrigerant, insulation, and oil; how dry the system is, and whether there is any air in the system. One figure that has been used widely as a maximum discharge temperature is 275° F. (135° C.). Some manufacturers think that 275° is too high, and that discharge temperatures should be limited to a maximum of 250°, or even 225°.

But if we use 275°, we find that 22 is at a considerable disadvantage, particularly in air-cooled, low temperature units, where the condensing temperatures and pressures are high, and the evaporator temperatures are low; that is, when the ratio of compression is high.

22 AT DISADVANTAGE FOR LOW TEMPERATURE, AIR-COOLED UNITS

On this basis, 22 is not advisable for air-cooled units in a 70° or over room, if the evaporator temperature is below about -15° F.

We do not have superheat data for 22 for saturation temperatures above 115°, which, with an air-cooled unit would be the condensing temperature in about a 75° to 80° room, so the tables do not tell us what the normal discharge temperatures for an air-cooled unit in a 100° room should be, but they would undoubtedly be above 275° except perhaps with the high evaporator temperatures, such as in air conditioning.

Above the dotted line in Table 11, discharge temperatures are below 275°. Below it, they are above 275°, and represent installations for which 22 is not suitable, as far as discharge temperatures are concerned.

In arriving at these figures, we have assumed 65° as the temperature of the gas entering the compressor, for this is usually regarded as more or less standard.

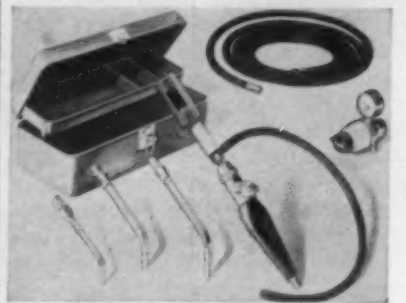
If the suction line is much cooler than 65°, it is apt to sweat badly in damp weather. In low temperature applications, the suction line could be insulated and a lower superheat maintained, which would lower the discharge temperature.

One way to keep the discharge temperature down, is to use a water-cooled head on the compressor. One prominent manufacturer specifies that with 22, if the ratio of compression is above 5 to 1, water-cooled units

with water-cooled compressor heads must be used.

Another well-known manufacturer of home and farm freezers using 22, uses an air-cooled, shell-type condenser (with the condenser tubing soldered to the inside of the cabinet shell) on his two smallest models, but on 1/3 hp. and larger, he uses a finned condenser with a condenser fan.

(Continued on next page)



all your service and repair needs in one kit

PREST-O-LITE

Trade-Mark

REFRIGERATION AND AIR-CONDITIONING OUTFIT

One handy kit provides complete equipment for soldering, heating, brazing, and leak detecting—all you need to repair or service any refrigeration or air-conditioning system.

Three interchangeable open-flame stems assure you of just the right air-acetylene flame for every job. A highly sensitive halide leak detector stem that fits the same torch handle quickly and easily pin-points halide refrigerant gas leaks too small to detect with soapy water.

Standard Leak Detector Stem (right) in this outfit instantly detects as little as 100 parts per million of halide refrigerant gas in air.

Complete outfit, as illustrated above \$39.75 (List)



Ask for a demonstration at your nearby LINDE Jobber's. Or write today for further information: Linde Air Products Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Linde Air Products Company, Division of Union Carbide Canada Limited, Toronto.

GET IT FROM YOUR LINDE JOBBER

The terms "Prest-O-Lite" and "Linde" are registered trade-marks of Union Carbide and Carbon Corporation.

2 STAGE Drying Action plus Exclusive IMPERNYL FILTERING

... brings greater drying and filtering capacity in a more compact Unit!
... dries both Before and After filtering!

IMPERIAL GOLDEN TORPEDO® FILTER-DRIER

The new Imperial Golden Torpedo Filter Drier has two separate drying chambers. After refrigerant passes through Silica Gel of first chamber it is cleanly filtered of all impurities by the very effective Impernyl Nylon Filter. This allows the Silica Gel in the second chamber to perform at 100% efficiency. Both chambers contain 100% PA400 Silica Gel. Filtering area is proportionate with capacity.

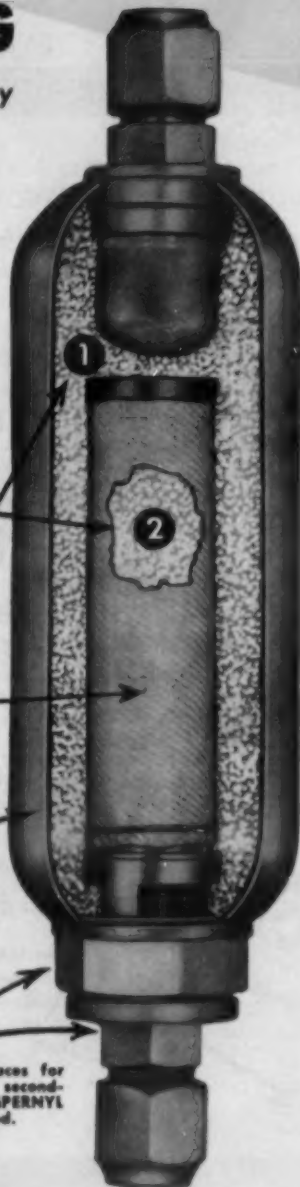
The Golden Torpedo... the finest in filter-driers... sets a new high in drying and filtering efficiency!

2 STAGE DRYING ACTION SILICA GEL IN BOTH CHAMBERS

Exclusive IMPERNYL NYLON FILTERING

One-piece streamlined copper shell provides greater strength. Fewer joints—less chance of leakage.

Note the generous surfaces for wrench hold. Fitting and second-stage chamber with its IMPERNYL Filter are readily removed.



Ask for Bulletin No. 116-REF See Your Jobber

GOLDEN TORPEDO REFILLABLE DRIERS

Furnished with Flare Nuts and Copper Seal Caps

Cat. No.	Size of Connections	Cubic Inches	H.P. Rating	Overall Length	Diem. of Shell
706-C	1/4" Flare	6	1/4 to 1/2	6"	3"
709-C	1/4" Flare	9	1/2 to 3/4	6 1/4"	3"
712-C	1/4" Flare 3/8" Flare	12	3/4 to 1	8"	2"
718-C	1/4" Flare 3/8" Flare	18	1 to 1 1/2	8 1/4"	2 1/2"
730-C	3/8" Flare 1/2" Flare	30	1 1/2 to 3	10 1/4"	2 1/2"
750-C	3/8" Flare 1/2" Flare 3/4" Flare	50	3 to 5	12"	3"
778-C	1/2" Flare 3/4" Flare 3/4" Solder	75	5 to 7 1/2	18 1/4"	3"
7100-C	3/4" Solder 1 1/4" Solder	100	7 1/2 to 10	20 1/2"	3"

THE IMPERIAL BRASS MFG. CO., 534 S. Racine Ave., Chicago 7, Ill.
In Canada: 334 Louder Ave., Toronto, Ontario

IMPERIAL

FITTINGS VALVES DRIERS FILTERS
CHARGING LINES TOOLS for Cutting,
Flaring, Bending, Pinch-Off, Swaging

Symbol of Quality

FRIGIDAIRE ICE CUBE MAKER DEALERS ATTENTION

Add-A-Bin Ice Storage Unit (MODEL 400N)

made especially for
200 lb. Frigidaire Ice Cube Maker
to store 400/500 lbs.

Insulated—stainless steel interior—drain—slant opening with sliding doors.

Length 45"—height of bin 27"—legs 3"—depth 34".

Cuber is mounted on the bin. No cutting of the floor of the bin is needed because of a special insulated chute.

Plenty of repeat orders from satisfied Frigidaire dealers, for over three years.

A Dunhill Product.

Inquiries invited for bins for other cube makers.

N. Silverman Inc.
488 7th Ave., N. Y.
National Sales Office

TABLE 10—Per Cent of Swelling of Gasket Materials

	12		22	
	Linear	Volume	Linear	Volume
Buna N	2.0	4	2.6	100
Neoprene GN	0.0	0	2.4	7
Polysulphide GR-1	5.6	16	1.2	2.5
Natural Rubber	6.0	18	6.0	18

TABLE 11—Permissible Evaporating and Condensing Temperatures Based on Maximum Discharge Temperature of 275° F.; and Except for Standard Ton Conditions, Based on Suction Gas Superheated to 65° F.

Condensing Temperature	Evaporating Temperature	12		22	
		Disch. Temp. °F.	Comp. Ratio	Disch. Temp. °F.	Comp. Ratio
86° F.	5° F. (Std. Ton)	100	4.07	131	4.06
90° F.	40° F.	122	2.2	140	2.2
90° F.	0	171	4.8	213	4.8
90° F.	-40	231	12.3	292	12.1
110° F.	40° F.	146	2.9	170	2.9
110° F.	0	192	6.3	242	6.3
110° F.	-16	221	9.0	275	8.9
110° F.	-40	261	16.2	330	15.9
140° F.	40° F.	178	4.3		
140° F.	0	232	9.2	Excessive discharge temperatures below dotted line.	
140° F.	-29	275	17.9		
140° F.	-40	294	23.7		

Refrigerants --

(Continued from preceding page)

This manufacturer finds that with the larger models, the surface of the cabinet shell is not enough to keep the head pressure down to an acceptable pressure to prevent excessive discharge temperatures, and that a fan is also necessary to move air over the compressor itself rapidly enough to keep it cool.

In addition to accelerating the breakdown of insulation, oil, and refrigerant in a system, high discharge temperatures increase the temperature of the compressor itself, for the heat from the hot gas is conducted to the entire compressor, and may cause motor burn-outs, bearing damage, and similar troubles.

(To Be Continued)

Water Service Lab Adds Chemical Mfr., Packaging Annex

NEW YORK CITY—Opening here of a new service annex to provide expanded facilities for manufacturing and packaging water-treating chemicals was recently announced by Henry L. Shuldener, president of Water Service Laboratories, Inc.

The new 10,000 sq. ft. plant for the chemical engineering and water treatment specialist firm will occupy the entire building at 609 W. 131st St. It will release space for enlarged laboratory facilities in the company's main building at 423 W. 126th St., it was noted.

Although the building was purchased a year ago, alterations were necessary because of the specialized equipment required in making water-treating chemicals, Shuldener further explained.

AIRO stands for

Fast, dependable, world-wide service.

Refrigeration and Air Conditioning parts and supplies.

Write for current Catalog

AIRO SUPPLY CO.

2732 N. Ashland Ave., Chicago 14, Ill.



... SO HALSTEAD & MITCHELL ENGINEERS SAID

'LET'S STOP COOLING TOWER RUST'

The man shown above is using live steam to remove every vestige of dirt and scale prior to applying Halstead & Mitchell protections which withstand both rusting and all present day water treatments normally recommended for cooling towers and condensers. These unusual protections are used *only* on Halstead & Mitchell's Cooling Towers.

First protection is Vinsynite. Vinsynite works twice—it phosphates the metal, stopping rust dead in its tracks, and it forms the perfect adhesive base for paint coats to follow.

Vinyl Zinc is then applied, and vinyl paints have made their reputation because they are tough, flexible, inert and water resistant. Water vapor is locked out as the Vinyl Zinc locks to the underlying Vinsynite.

Third protection is chlorinated rubber, a paint which forms a thick film. Adequate film thickness is important when contact with water and high humidity is unrelenting, as in cooling tower service. Chlorinated rubber is also noted for its toughness and water resistance.

Halstead & Mitchell protections are more than painted on. They are hydraulically forced into every nook and cranny of every Halstead & Mitchell Cooling Tower so that no spot can ever be left unprotected as a starting point for rust. The combination of heavy film, vapor seal, toughness and tremendous adhesion offer protection against corrosion matched by no other manufacturer.

Want Details on the Widest Selection in Cooling Towers?

COMMERCIAL • INDUSTRIAL • RESIDENTIAL • TAKE-APART • CENTRIFUGAL

Write Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.

Or See Your Leading Wholesaler

HM

Halstead & Mitchell

WOOD ROTTING, TOO, CAN BE STOPPED! We do more than praise the long life of wood used in our wetted decks—we are the *only* manufacturer who offers a 20-Year Guarantee on wetted deck wood against rotting or attack by fungus!

Pipe Joint Compound Found Useful for Piping in Top Floors of Large Building

BROOKLYN—An additional application for its "Pipe Joint Compound 51" was recently reported to Permatex Co. by a New York air conditioning piping contractor, it was recently announced.

Previously beset with difficulties in installing air conditioning piping in the upper floors of large buildings, Standard Piping Installation Corp. informed the chemical manufacturing firm that it had experimented with the Permatex compound on an air conditioning piping contract for the St. Moritz hotel in New York City and found it "completely satisfactory, with good adhesion to metal and meeting requirements for resistance to water pressure."

The Permatex product was used on all fittings throughout the 32-story hotel on black steel pipe which had to withstand hydrostatic pressure of 150 lbs., it was further pointed out.

Samuel Bartfeld, president of Standard Piping, stated that when the installation was completed, no leaks were found throughout the entire large building.

The Permatex compound, he added, was used with like results on similar projects recently completed at the Manufacturers Trust Co. building, 43rd St. and Eighth Ave., and at Simplicity Patterns, 200 Madison Ave.

Both firms are located in New York City.

Drake Room Units Sized So Windows, Transom Can Be Open

CHICAGO—Air conditioning of the entire 700-room Drake hotel has recently been completed after two years of work, Edwin L. Brashears, president of the hotel, has announced.

An unusual feature of the 100-ton system, according to Brashears, is that room units are sized so that windows or transoms can be opened without affecting the cooling of the room.

The air conditioning system was installed by Refrigeration Systems, Inc. of Chicago. It consists of a 100-ton compressor, a water chiller, a circulating pump, and an evaporative condenser. All of the equipment except the condenser is installed in a penthouse on the roof. The condenser is installed on the roof itself.

Room cooling units are placed in the top of closets. They vary in size according to the size of the guest rooms. They are connected to vertical riser pipes which run from the lowest floor served to the penthouse where they connect with the main distribution headers.

A three-speed switch controls each room unit. Custom designed brass switch plates permit guests to dial the degree of cooling they wish.

Lobby, corridors, and public areas are also cooled.

The air conditioning is part of a \$3 million refurbishing program which is still in progress.

Marlo Coil Names Agent For Pittsburgh Area

ST. LOUIS—Marlo Coil Co., manufacturer of air conditioning and heat transfer equipment, has announced the appointment of Ward & Black Engineering Sales as Marlo representative in the Pittsburgh area.

Address of the newly-appointed representative is 822 Chapel Way, Pittsburgh 33.

Principals of the firm, which was organized in 1952, are L. C. Ward and Robert Black. Black was formerly an engineer with the Gulf Oil Co. Ward previously served as manager of the Syracuse, N. Y. branch office of the Herman Nelson Corp.

Worthington Refrigeration System Will Cool Water for Jail Manufacturing Firm

HARRISON, N. J.—Refrigeration equipment will be used for providing chilled water at Decatur Iron & Steel Co.'s plant at Decatur, Ala., according to Worthington Corp.

Specializing in the manufacturing of jails with a novel locking system, the Decatur firm has recently purchased a Worthington refrigeration system comprising a 40-ton "Freon" com-

pressor, a condenser, and a 14 in. by 10 in. chiller.

The refrigeration equipment will serve an important phase of the manufacturing operations by supplying chilled water for the quenching baths which are used to chill the steel.

Mechanical contractor for the installation of the refrigeration equipment is Hardy Corp. of Birmingham, Ala.

heat-x HEAVY DUTY UNITS

...Equipment you can Rely on



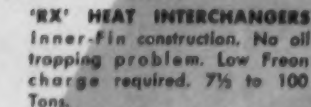
'CH' WATER CHILLERS

Copper Inner-Fin in refrigerant passages. Water passages of non-ferrous construction. Single pass. 2 to 90 Tons.



'IC' CONDENSERS

Copper Inner-Fin in refrigerant passages. All water passages of non-ferrous construction. 5 to 150 Tons.



'HX' HEAT INTERCHANGERS

Inner-Fin construction. No oil trapping problem. Low Freon charge required. 7½ to 100 Tons.



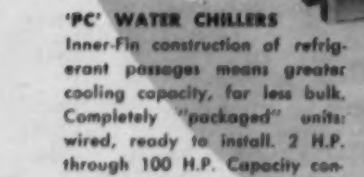
'HX-ETI' LIQUID COOLERS

Combinations of cast aluminum coolers simply constructed with separate liquid and refrigerant coils cast in aluminum blocks.



'PC' CHILLER ASSEMBLIES

For those who prefer to tie in their own condensing unit and water pump. Construction the same as 'PC' line. 10 to 90 Tons.



'PC' WATER CHILLERS

Inner-Fin construction of refrigerant passages means greater cooling capacity, far less bulk. Completely "packaged" units: wired, ready to install. 2 H.P. through 100 H.P. Capacity control, available on 2 H.P. through 15 H.P. models for use with hermetic and semi-hermetic units, eliminates short-cycling during light load conditions and maintains constant suction pressure.

Advanced engineering design, copper construction of all water passages, quality materials and careful workmanship throughout assure the solid reliability of all these heavy duty Heat-X products.

Write for descriptive catalogs on these or other Heat-X units.

HEAT-X, Inc.

BREWSTER • NEW YORK

ORIGINAL?



YES, STANDARD FOR ORIGINAL EQUIPMENT REMCO SUPER-FLO FILTER-DRIER

Remco equipment, such as the Super-Flo Filter-Drier, is *Original Equipment Standard* to 112 American manufacturers of air conditioning and refrigeration equipment.

Why? Because the Super-Flo gives massive depth filtering with a fiberglass bag to remove *unprecedented* quantities of minute foreign particles. The unexcelled molded Remcal drying element will continue permanent refrigerant drying at peak efficiency even at liquid-line temperatures thru 200° F. And to top it all, there's excellent acid control and no measurable pressure drop!

Remco's Super-Flo for Freon 12 and 22 is available in brass or low-cost steel, with flare, sweat or silver brazing connections. Bursting pressure minimum for steel is 2400 psi, and for brass thru 2250.

For automotive air conditioning the Super-Flo is available as a Receiver-Filter-Drier Liquid Indicator combination. For any application, Super-Flo is standard for original equipment.

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100 ALEXANDER AVENUE • POMPTON PLAINS, NEW JERSEY

The **NEWEST** design in water-cooled refrigerant condensers. Used by major equipment manufacturers because of these—

SELLING ADVANTAGES:

- Use 35% less water
- Cost reduced 30 to 40%
- Stock sizes: ½ to 7½ tons
- No internal joints
- Easy installation
- Many compact shapes

UsAirco Moves -- Mitchell Line --

(Concluded from Page 1, Col. 4)

program of plant additions and alterations is in progress to provide under on roof facilities for the UsAirco operation and expanded production of Jordon freezers.

"The move to Philadelphia was dictated by the need for more efficient production facilities and a location that is geographically closer to UsAirco's sources of supply and its principal markets," he said.

"As the company evolved from a custom fabricator of diversified cooling, heating, and ventilating products to a mass manufacturer of packaged air conditioning equipment, the Minneapolis facilities became increasingly less suited to our operations," he explains.

"The Philadelphia plant, on Tabor Rd., was completed in 1954. It now contains 102,000 sq. ft. of space and its 11 acres of undeveloped property will provide ample room for expansion to meet future needs."

UsAirco expects to employ approximately 500 persons as soon as normal production of its air conditioning equipment and the home freezer products of its Jordon subsidiary is achieved.

LITTLE SERVICE DISRUPTION

Feinberg reports that little or no disruption of customer service is anticipated during the move period. RK's self-contained central station equipment, blowers, and other Philadelphia-produced products will be f.o.b. Philadelphia soon.

However, the company has already produced its seasonal requirements of packaged air conditioners (77 series), air-cooled residential condensing units (83 & 84 series), residential evaporator coils (64 series), and residential blower-coil units (72 series). These products will be sold on an f.o.b. Minneapolis basis until further notice.

Approximately 35 members of the manufacturer's staff have been relocated in Philadelphia.

United States Air Conditioning Corp., which was founded under the company name Arctic Nu-Aire in 1924, has been manufacturing in Minneapolis since 1928. It purchased its Como Ave. plant from the War Assets Administration in 1946.

In addition to its Jordon subsidiary, which produces home freezers and combination refrigerators and freezers in Philadelphia, UsAirco operates its Floral City Heater Div., in Monroe, Mich., manufacturing warm air residential furnaces. Sterl-Airco, Inc., a subsidiary jointly owned with the Sterling Heat Specialties Div. of Sterling Radiator Co., produces gas-fired unit heaters in Westfield, Mass.

(Concluded from Page 1, Col. 2)

containing a newly designed refrigeration unit, a 1,450 r.p.m. fan motor, and an oversize blower wheel delivering air at 900 f.p.m.

2. Compact cabinet—22% by 24½ by 14¼ in.—and simple installation kit.

3. Automatic thermostat and single knob dial control as standard equipment on all models.

4. Sound conditioning with 10 manufacturing improvements to reduce operating sound level of the unit.

Mitchell said it has established no list prices for the line. Each distributor will establish prices in his own area according to competitive conditions.

J. W. Alsdorf, president of the company, declared, "This move was planned six months

ago when we predicted an early season sell-out and a shortage of merchandise.

"Mitchell dealers will be able to capitalize on the extended selling season developed in 1956, which we feel will be even longer in 1957, and sell a product that is especially priced for late season volume."

Steel Prices --

(Concluded from Page 1, Col. 3)

will shortly be increased in the range of 8-10% whether or not there is any immediate increase in steel prices.

The predictions are that steel prices will jump from 6 to 10%, depending somewhat on how the wage negotiations turn out. What this will mean in terms of increased costs in end products will be determined pretty much by the amount of steel used in the product. A

household refrigerator retailing at \$300, for example, is said to include from \$20 to \$25 of steel. A commercial refrigerator might have considerably more, some types of air conditioners considerably less.

So far as the effect on the availability of products is concerned, there is not too much concern being exhibited in the industry. Air conditioning inventories are low, and production is being continued by some concerns, but the "production season" for 1956 models is about over. Refrigerators, freezers, and other major appliances are in good supply, and some producers are said to have piled up fairly sizable inventories of steel.

Manufacturers of commercial refrigerators, and producers of all types of components, might be the first to be hit by any extended steel strike, it is emphasized.

Lehman Named --

(Concluded from Page 1, Col. 4)

manager. In 1934, Lehman was appointed manager of the Frigidaire Sales Corp. in St. Louis. He returned to Dayton in 1939 as manager of commercial and air conditioning sales. He became assistant general sales manager in 1943 and became general sales manager in May, 1952.

Roberts, a native of Anderson, Ind., joined the Remy Electric Co. there in 1912. He remained in Anderson until 1925 when he became associated with the Frigidaire organization in Dayton. Subsequently, he was appointed assistant works manager, plant superintendent, works manager, and finally general manager in April, 1948.

He was elected vice president of General Motors Corp. in June, 1950.



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Chip-Freeze

AUTOMATIC ICE FLAKER

A new 560 lb. daily capacity ice flaker that is fast becoming the number one salesman in restaurants, bars, hotels, soda fountains, groceries and all retail outlets that want and use ice making equipment. Here is the newest, the most scientifically designed unit on the market today. Easy to operate and trouble free, CHIP-FREEZE is priced below competition. Offer your customers the unit that is making sales history. Sell CHIP-FREEZE, the only ice flaker in its field that provides these outstanding sales features.

• **FOR ECONOMY** . . . Savings up to 95%. A full bushel of crystal clear ice flakes for as little as 2c or 3c per hundred lbs. (depending on local power and water rates). Pay only for the ice that you need. Low installation cost and easy maintenance makes CHIP-FREEZE the most economical unit on the market.

• **FOR CONVENIENCE** . . . New NO DEEP REACHING DESIGN places ice at waist level . . . right at your fingertips for instant serving. Easy to operate, this space saving unit automatically turns itself on and off and is ideal for any water system.

• **FOR SANITATION** . . . No possibility of accumulation of ice that leads to scum, dirt and decay. CHIP-FREEZE produces ice at the top of the unit and enables you to constantly draw clean fresh ice from the lower part of the upper section of the sanitary, stainless steel storage bin. Newly produced ice then falls into place . . . ready for serving.

• **FOR BEAUTY** . . . Beauty pays off in sales appeal. The attractive CHIP-FREEZE space saving cabinet is available in a wide choice of decorator colors to harmonize with any interior. Easy to clean hi-lake enamel finish retains its luster for the life of the machine.



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Sparkling
pure ice
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Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Corps of Engineers, U. S. Army, Office of the District Engineer, Chicago District, 475 Merchandise Mart, Chicago 54, Ill.
Construction of Hospital Air Conditioning, and Connecting Road in Test Cell Area at Chanute Air Force Base, Rantoul, Ill.
Hospital Air Conditioning

(1) Equipment

(2) Building Alterations and Extension of Utilities and Services
—Bid Opening 10 July 56. Deposit of Fifty Dollars for Hospital Air Conditioning. Money order or certified check payable to the Treasurer of the United States is required for each set of plans and specifications request. Mail to Chicago District, 475 Merchandise Mart, Chicago 54, Ill. Deposit will be refunded upon return of document in good condition. Plans, specifications, and bidding papers when issued will be placed on exhibit at the following address, in addition to this office where they may be examined: Area Office, Corps of Engineers, 425 Federal Building, Milwaukee 1, Wis.; Office of the District Engineer, Rock Island District, Clock Tower Building, Rock Island, Ill.; Office of the District Engineer, St. Louis District, 420 Locust St., St. Louis 2, Mo.; Office of the District Engineer, St. Paul District, 1217 U. S. P. O. & Customhouse, 180 E. Kellogg Blvd., St. Paul, Minn.; Office of the District Engineer, Duluth District, P. O. Box 248, Engineer Building, Canal Park, Duluth 1, Minn.; P. W. Dodge Corp., Room 700, Merchandise Mart, Chicago 54, Ill.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 4, Business Service Center, 50 Seventh St., N.E., Atlanta, Ga.
NEW ELECTRICAL AND HEATING WORK, Troy, Ala., Post Office.—Job—
IFB CR4-1255—Bid Opening 12 July 56.

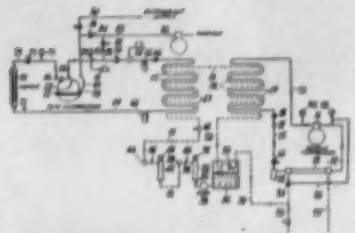
U. S. POST OFFICE DEPARTMENT

Chief of Procurement, Bureau of Facilities, Post Office Department, Washington 25, D. C.
AIR CONDITIONING UNITS, FOR SASH WINDOWS—3 to Washington, D. C.
—4 to Kansas City, Mo.—IFB 2239—Bid Opening 7-5-56.

PATENTS

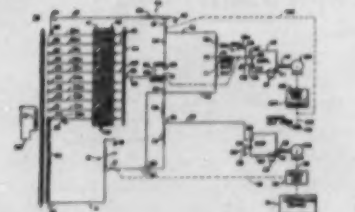
Week of February 7 (Concluded)

2,733,600. APPARATUS FOR TESTING REFRIGERATION COMPRESSORS. Leonard J. Sals, Hamburg, and Harry W. Mould, Jr., Kenmore, N. Y., assignors to Pedders-Quigan Corp., Buffalo, N. Y. Application Oct. 4, 1952, Serial No. 313,118. 5 Claims. (Cl. 73-165.)



1. Apparatus for testing the capacity of a gas compressor comprising a test circuit adapted to include a compressor to be tested, a discharge line for said compressor, a pressure regulating valve in said discharge line whereby the discharge pressure may be governed, a pressure reducing valve in said line and a heat interchanger connected to the reducing valve to receive the compressor discharge, a suction line from said heat interchanger adapted to be connected to the suction port of said compressor, a flow meter in the suction line, instruments in said discharge and suction lines for ascertaining discharge and suction pressures and suction temperature, a separate circuit including a part in heat exchange relation with said heat interchanger of the test circuit, and means for circulating a cooling medium through said separate circuit.

2,734,155. MOTOR CONTROL APPARATUS ADAPTED FOR AUTOMATIC TO MANUAL CHANGE-OVER. Oscar Hugo Schuck, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware, Application May 29, 1953, Serial No. 358,293. 13 Claims. (Cl. 318-19.)

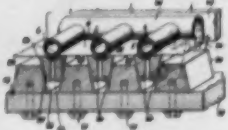


1. Control apparatus comprising in combination: a device to be adjusted; first motor means connected to adjust said device; automatic signal means for controlling adjustment of said device; manually adjusted signal means for controlling adjustment of said device; second motor means energizable to adjust said manually adjusted means; means connected to said motor means and said automatic signal means for normally causing energization of both said motor means in accordance with the signal from said automatic signal means; and switching means connected to said signal means for disabling said second motor means

and said automatic signal means and causing energization of said first motor means in accordance with the signal from said manually adjusted signal means.

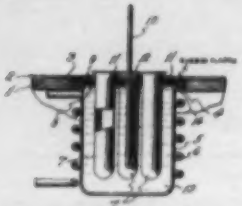
Week of February 14

2,734,259. METHOD OF MAKING HEAT EXCHANGER. Jozsef Beck, Budapest, Hungary; Mrs. Jozsef Beck, nee Ilona Szanto, Budapest, Hungary, sole heir of said Jozsef Beck, deceased, assignor to the firm "Licencia" Talmanyoskat Ertekesito Valtalat, Budapest, Hungary. Application Sept. 6, 1951, Serial No. 245,362. Claims priority, application Hungary, Sept. 11, 1950. 1 Claim. (Cl. 29-157.3.)



A method of assembling fin plates on the tubes of a heat exchange device, including a plurality of substantially parallel tubes each provided with at least one external longitudinal rib and each secured at its ends to headers, comprising, after the ends of the tubes have been secured to the headers with the ribs on the tubes all extending in the same direction outwardly from the tubes and header assembly, positioning a plurality of clamps, of U-shaped cross-section having spaced side walls in parallel relation and spaced apart to register with and receive the ribs on the tubes, positioning fin plates of a width to extend between the adjacent sides of the ribs of an adjacent pair of tubes and having edge flanges to lie against the sides of the ribs and of a height substantially equal to the height of the ribs with the edge flanges of a pair of adjacent plates loosely seated between the side walls of a clamp, inserting the rib of each tube into its corresponding clamp between the edge flanges of the adjacent pair of plates seated in the clamp, and simultaneously forcibly gripping the side walls of all the clamps with a pressure of sufficient intensity to squeeze the side walls of each clamp, the edge flanges of the plates therein and the respective rib and crush them into full metal-to-metal contact with each other.

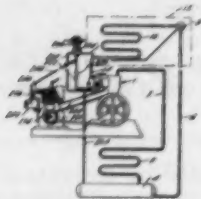
2,734,345. SAMPLE SUPPORT FOR REFRIGERATING CABINETS. Paul Lawler, Jr., Bayonna, N. J. Application June 5, 1953, Serial No. 359,719. 1 Claim. (Cl. 62-1.)



In a cabinet for refrigerating test samples and having at least one opening in the top in which is suspended a container holding the refrigerating bath in which the samples are immersed for cooling, the improvement comprising a thin, removable rigid sheet of hard plastic covering said container, a thicker, removable sheet of flexible, liquid absorbent sponge plastic superimposed over the first sheet, and means forming holes disposed in register through both sheets,

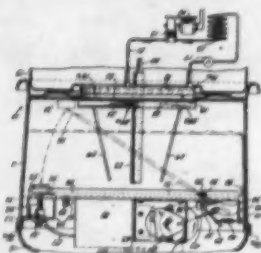
into which the samples are inserted for refrigeration in the bath.

2,734,346. APPARATUS FOR CONTROLLING REFRIGERATING SYSTEMS. Edward F. Dickieson, Jr., Detroit, Mich.; Nathalie L. Dickieson, executrix of said Edward F. Dickieson, Jr., deceased, assignor to Nathalie L. Dickieson. Application Feb. 4, 1949, Serial No. 74,585. 7 Claims. (Cl. 62-4.)



1. In a refrigerating system, a compressor having an inlet and an outlet, an evaporator connected to receive refrigerant from said compressor and having an outlet, a suction vapor passageway connecting said evaporator outlet to said compressor inlet, a valve in said suction passageway for controlling fluid flow therethrough and a pair of valve actuators operatively inter-connected to said valve to actuate said valve toward a closed position as a result of the interaction of the effects of said actuators, a first of said actuators being responsive to an operating condition of said evaporator to urge said valve toward a closed position in response to a first magnitude of said evaporator condition, a second of said pair of actuators being responsive to an operating condition of said compressor to urge said valve toward a closed position in response to a second magnitude of said compressor condition, a means for driving said compressor at a reduced speed, and means operatively connecting said first actuator to said driving means rendering said first actuator effective to control said driving means to reduce the speed at which said compressor is driven in response to a second magnitude of said evaporator condition.

2,734,347. APPARATUS FOR PRODUCING AND DISPENSING BEVERAGES HAVING FROZEN PARTICLES THEREIN. Harry C. Fischer, Columbus, and Louis P. Benus, Gahanna, Ohio, assignors to The Ebeco Mfg. Co., Columbus, Ohio, a corporation of Ohio. Application Oct. 13, 1952, Serial No. 315,567. 11 Claims. (Cl. 62-4.)



2. In an electrically-actuated refrigerated dispenser for partially frozen beverages including a receptacle for the beverage, means for circulating the beverage within the receptacle to maintain homogeneity between frozen and unfrozen parts thereof, and a refrigeration system comprising a heat exchange member for cooling the beverage within the receptacle, a compressor for circulating a refrigerant through said heat exchange member and an electric motor energizable to drive said compressor; means for controlling the proportion of frozen to unfrozen parts within the beverage comprising means in said receptacle for segregating a portion of the beverage from the main body thereof, and switch means connected with said motor and responsive to the amount of frozen parts within said segregated portion of the beverage for controlling the energization of said motor.

2,734,348. AIR CONDITIONING SYSTEM. Owen C. Wright, Millburn, N. J. Original application Nov. 3, 1951, Serial No. 254,667, now Patent No. 2,715,320, dated Aug. 16, 1955. Divided and this application June 1, 1955, Serial No. 515,049. 1 Claim. (Cl. 62-6.)

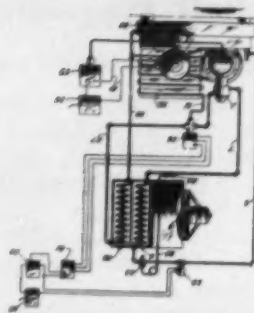
An air conditioning system comprising in combination, a refrigerant; a compressor; an evaporator about which air to be conditioned is circulated; an air cooled condenser; a solenoid valve

CHIEF REFRIGERATION ENGINEER

Unequal opportunity for a well grounded man who wants and can take responsibilities.

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Location New York City—Our organization knows of this ad. Write in confidence to Box 1080, Realservice Advt. Agency, 110 West 34 St., N.Y.C.



adapted to admit the refrigerant to the evaporator; a thermostat and a humidistat operably connected with the solenoid valve and adapted to keep the same open until each is satisfied; a heating coil positioned in the path of the air passed over the evaporator; a conduit incorporating a modulating three way mixing valve connecting the discharge outlet of the compressor with the inlet of the heating coil and with the air cooled condenser, the said valve being responsive to the thermostat and adapted to admit the compressed refrigerant directly from the compressor to the heating coil until the thermostat is satisfied.

(To Be Continued)

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RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

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POSITIONS AVAILABLE

ENGINEER TO teach refrigeration and air conditioning in a Technical Institute, Northern New York state. Good salary, paid vacations, excellent retirement plan. Position available immediately. AGRICULTURAL and TECHNICAL INSTITUTE, Canton, New York.

BLAST FREEZE distributors in many areas need additional sales personnel to assist food stores in entering the profitable freezer provisioning field. Give us your background in confidence. We will assist you, if possible, in locating an opening with real opportunity. Address Robert B. Ayres, President, BLAST FREEZE CORPORATION, 10 Main Street, Park Ridge, Illinois, Mark: Confidential.

BLAST FREEZE is expanding: We need field representatives on the West Coast, Southwestern area and Southeast, to work with exclusive distributors in major market areas. Also, for Los Angeles, Chicago and New York, factory branch direct sales representatives needed. Let us hear from you—we will be happy to discuss it with you. BLAST FREEZE CORPORATION, 10 Main Street, Park Ridge, Illinois.

REFRIGERATION TECHNICIAN—Take complete charge of testing laboratory on commercial refrigerators, in standard and low temperatures. Capable of working with tools. Must be able to make recommendations to chief Engineer on applications.—Opportunity for advancement to senior engineering position.—Degree not essential.—Experience is. Write to: William Fogel, President, FOGEL REFRIGERATOR COMPANY, 5400 Eadom Street, Philadelphia 37, Pennsylvania.

MANUFACTURER'S REPRESENTATIVE to sell special items of commercial refrigeration, which will be fill in items for established dealers. Territory, Michigan, Indiana, Midwestern or Southwestern states. THE C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

AIR CONDITIONING expert—Live in sunny Southern California. Permanent employment for man capable of service, start and test and check out of air conditioning systems. Ideal working conditions. Live in Long Beach and work the year around for well established, growing air conditioning firm. Foreman's wages with advancement. Health and accident insurance and vacation fund paid by employer. Write BOX A5556, Air Conditioning & Refrigeration News, stating experience, qualifications and earliest starting date.

WANTED: CHIEF engineer experienced in environmental equipment, such as, low temperature cabinets, temperature humidity cabinets, altitude chambers, etc. Location midwest. Engineering graduate preferred. Can offer an attractive and permanent proposition with rapid growing company. Write giving details, etc. BOX A5558, Air Conditioning & Refrigeration News.

OPPORTUNITY FOR an aggressive salesman with practical experience in air conditioning to promote and sell a revolutionary new cooling tower. A valuable future can be created with this quality product competitively priced for volume sales. BOX A5560, Air Conditioning & Refrigeration News.

FACTORY REPRESENTATIVE—established national manufacturer commercial refrigerators and store fixtures require the services of qualified field representatives under 45 years of age to cover New England and Middle Atlantic States. Experience in design and layout of super markets essential plus knowledge and contacts with wholesale and retail sales outlets for refrigerated equipment. Remuneration ex-

cellent for man with proper background. Submit complete resume to BOX A5562, Air Conditioning & Refrigeration News. Replies held in strict confidence.

ICE CREAM cabinet salesman under 45 years of age to cover protected eastern territory for national manufacturer of complete quality line of low temperature cabinets. Established sales background with ice cream manufacturer essential. Write complete resume, all replies are held confidential. BOX A5563, Air Conditioning & Refrigeration News.

DESIGNER-DRAFTSMAN. Experienced with sheet metal fabrication. Excellent opportunity for capable, imaginative man with large Metropolitan New York manufacturer of commercial refrigeration equipment. Submit full resume and salary desired BOX A5564, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

MANUFACTURERS LINE being discontinued—Inventory of factory fresh brand new 3-5-7-10 ton air conditioners, compressors, miscellaneous parts for quick sale either in part or whole deal. Particulars upon request. Write or phone ALLAN AIR PRODUCTS CORPORATION, 200 Frank Road, Hicksville, L. I., New York, Wells 8-0500.

SERVICEMEN'S THERMOMETERS: Mercury filled with pocket cases, range -60° to plus 160° F. Mfg. by Taylor and G. M. Price \$10.80 per dozen postpaid. H. L. BOGGESS & SONS, Liberty, Missouri, P. O. Box 137.

NEW SELF contained Kesco automatic condensate water disposal pumps for air conditioners ice cube bins; at your local wholesaler. Available in 10 and 20 foot heads.

NEW YORK, Abco Refrigeration, 1615 Second Ave.

MT. VERNON, Eastern Supply 521 East Third Street

SYRACUSE, Gould-Farmer Co., 1020 W. Genesee Street

WHITE PLAINS, County Seat, 111 Central Ave.

NEWARK, N. J., Tesco Distributors 78 Boston Street

DAYTON, OHIO, W. H. Kiefaber Co., Refrigeration Dept.

SACRAMENTO, CALIF., Associated Refrigeration, 1717 Eye Street

SEATTLE, WASH., Refrigerative Supply, 204 W. Republican

DETROIT 4, MICH., Lee Equipment Co., 4721 Joy Road

HIGHLAND PARK, MICH., J. M. Ober, Inc., 55 Oakman Blvd.

Distributors write to KESCO PRODUCTS CORP., Springfield Gardens 13, N. Y. for sample pump and literature.

MISCELLANEOUS

"SEALED UNIT Rebuilding-Basic Tools & Methods"—an instructive copyrighted manual giving complete details on economically equipping your shop to handle hermetic rebuilding. Exclusive trade secrets unavailable elsewhere. Mail postcard for descriptive folder. H. W. CUSTER, P. O. Box 98, Center Line, Michigan.

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR; 2833 Lincoln Avenue, Chicago 13, Illinois.

A SALES agency, New York City headquarters, specializing in refrigerated equipment. We cover the Eastern Seaboard, and are seeking another quality product to add to our line. We contact refrigeration dealers, dairies, ice cream companies and supermarket chains. Have complete sales and office staff, also showroom. Our organization is widely known in its field and holds memberships in the various trades we contact. Correspondence in strict confidence. Will visit your plant if your product interests us. BOX A 5565, Air Conditioning & Refrigeration News.

Imperial Starts New Niles, Ill. Plant

CHICAGO—First section of the new plant of The Imperial Brass Mfg. Co. is now under construction in Niles, Ill., a Chicago suburb, the company announced recently.

Building will be one story, of steel construction, with pressed brick exterior. Shaw, Metz & Dolio are the architects.

When completed the plant will total over 300,000 sq. ft. It will be located on a 25-acre site.

The first section will be devoted primarily to housing manufacturing facilities now located in Imperial's plant No. 2 in Chicago.

Imperial celebrated its 50th anniversary in 1955. It manufactures tube couplings and valves used in the conduction of liquids and gases in refrigeration, hydraulic equipment, instrumentation, machine tools, automobiles, tractors, and wherever tubing is used.

It is one of the pioneer manufacturers of tubing tools, fittings, valves, driers, liquid indicators, and other products for refrigeration and air conditioning.

Century Engineering Completes Ultra-Modern Air Cooling Laboratory

CEDAR RAPIDS, Iowa—E. J. Lattner, president, Century Engineering Corp., has announced the completion of an ultra modern air cooling laboratory here.

The installation includes a specially designed wind tunnel in which temperature, moisture content, and quantity of air discharged are measured.

In this laboratory Century engineers can set up and accurately maintain atmospheric conditions in order to rate combination heating-cooling systems according to ASRE standards, Lattner said.

It will also be used to determine requirements to secure satisfactory operation under more severe load conditions.

To determine exact operating conditions of cooling coils under varying conditions, thermocouples are attached to each circuit of the coil and recorded on electronic thermometers in the central control room.

Information obtained from these tests has greatly accelerated the development of cooling systems matched to the full line of Century oil and gas-fired furnaces, Lattner declared.

The company now offers more than 24 models for either water or air-cooled installations. A remote air-cooled compressor-condenser unit will be available in a single casing for both sheltered and exposed locations.

York Franchises Henry Furnace Supply

YORK, Pa.—Henry Furnace Supply Co., Columbus, Ohio, has been franchised by York Corp., it was announced by R. E. Cassatt, manager-commercial sales.

Franchised to distribute York commercial and residential air conditioning in a 14-county area, Henry Furnace Supply is owned by Mrs. Lillian E. Spoerlein who, along with her husband, established it in 1944. Mrs. Spoerlein took over the operation when her husband died, in 1952.

The Spoerleins were in the furnace business together for 15 years in the Columbus area and Mrs. Spoerlein was manager of the Columbus branch of Schill Mfg. Co. before organizing the present company.

George Marshall will conduct the sales promotion program.

Miller Heads Officers Of New ASRE Section In Birmingham, Ala.

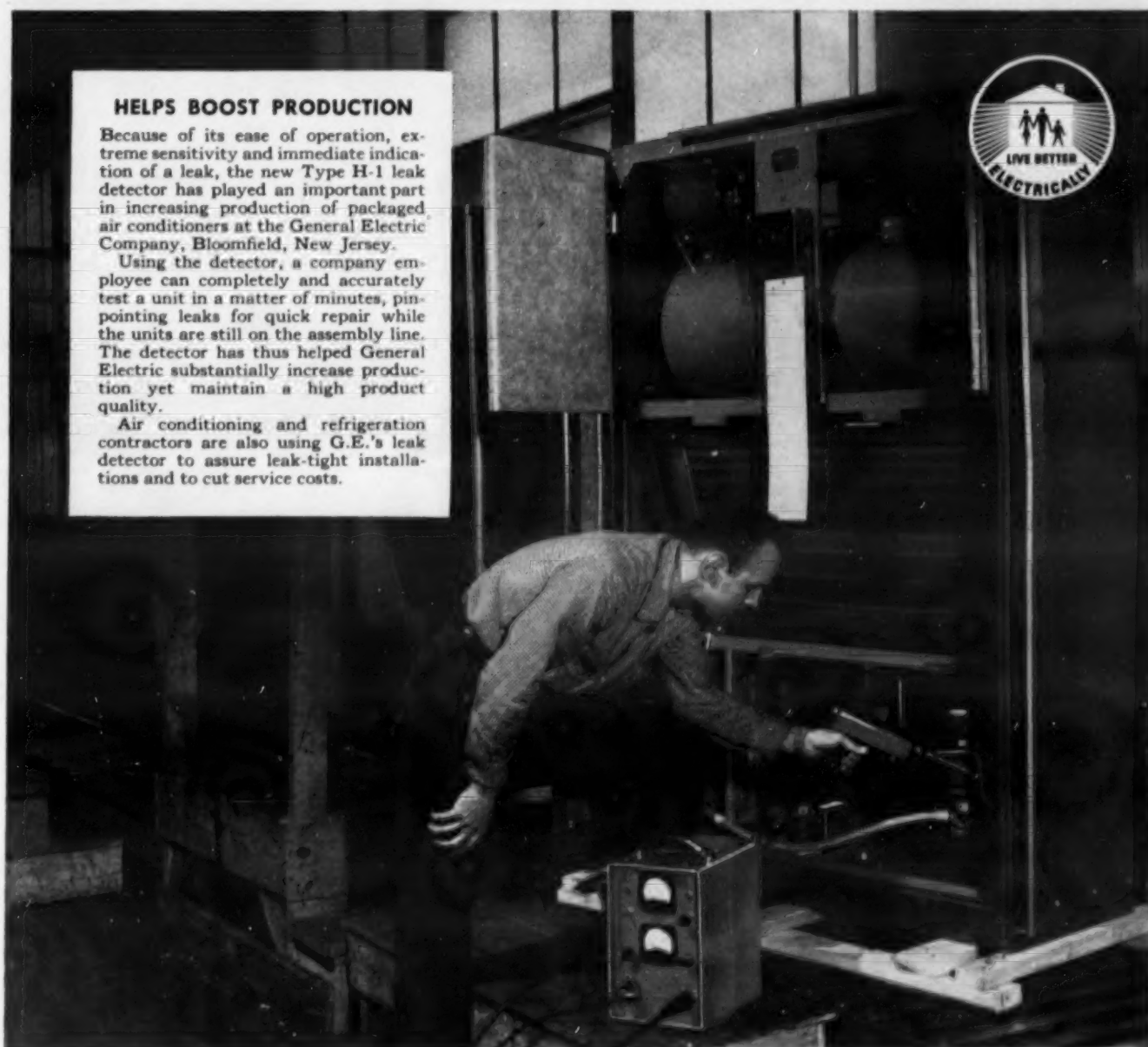
BIRMINGHAM, Ala.—Refrigeration and air conditioning engineers of Alabama, at a recent meeting, organized a Birmingham Section of the American Society of Refrigerating Engineers.

Elected officers were E. B. Miller, Van Keuren Davis & Co., chairman; Frank L. Vaughn, Sporlan Valve Co., first vice chairman; J. C. Malone, consulting engineer, second vice chairman; Sax Lawrence, Palmer & Lawrence, secretary; and C. M. Valentine, treasurer.

Approximately 39 men attended the first organizational meeting. It was anticipated that the new section would have 45 members prior to the next meeting.



OFFICERS of the newly-organized Birmingham, Ala. American Society of Refrigerating Engineers from left to right are: E. B. Miller of Van Keuren Davis & Co., chairman; Herbert Tinning, assistant national secretary; Frank L. Vaughn, Sporlan Valve Co., first vice chairman; J. C. Malone, consulting engineer, second vice chairman; Sax Lawrence, Palmer & Lawrence, secretary; J. G. Woodruff, University of Georgia, regional director; and C. M. Valentine, treasurer (not shown).



HELPS BOOST PRODUCTION

Because of its ease of operation, extreme sensitivity and immediate indication of a leak, the new Type H-1 leak detector has played an important part in increasing production of packaged air conditioners at the General Electric Company, Bloomfield, New Jersey.

Using the detector, a company employee can completely and accurately test a unit in a matter of minutes, pinpointing leaks for quick repair while the units are still on the assembly line. The detector has thus helped General Electric substantially increase production yet maintain a high product quality.

Air conditioning and refrigeration contractors are also using G.E.'s leak detector to assure leak-tight installations and to cut service costs.

QUICK AND ACCURATE leak checks of equipment can be made on the assembly line as well as at customer's installation.

GENERAL ELECTRIC'S PORTABLE LEAK DETECTOR HELPS CONTRACTORS . . .

Make Jobs Leak-Tight; Cut Service Costs

Service repair reductions of 85% have recently been reported by a G-E Leak Detector user in Michigan who installs air conditioning equipment. Similar savings of time and labor can be yours when you use General Electric's Leak Detector to assure your customers a leak-tight initial installation of reciprocating, rotary or centrifugal compressors; household, commercial or industrial refrigeration systems. And you can handle service calls faster and more effectively during the busy summer months by using this simple instrument to "sniff out" troublesome leaks in installations which you service.

Existing light has no effect on the efficiency of your inspection procedure with the General Electric Type H-1 Leak Detector and even unskilled operators can find leaks so small that in 100 years, only one ounce of Freon® gas would escape.

A true leak signal is assured because the Type H-1 detector automatically offsets slow changes in background concentrations of halogen gases. Only a true leak of halogen gas causes a response. Leaks are indicated by an instrument dial as well as by a variable-pitch loudspeaker or earphones.

Readily portable, the unit weighs only 24½ pounds. It is well suited to use in your shop as well as for service testing in the field wherever alternating current is available.

For more information, call your G-E Apparatus Sales Office or write for bulletin GEC-233 to Section 585-55, General Electric Co., Schenectady 5, N.Y. *Registered trade-mark of Kimeric Chemicals Division of E. I. duPont de Nemours & Co., Inc.

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THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.

PRESSURE GAUGES and Dial Thermometers for all services.

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MARSH INSTRUMENT COMPANY

Sales Affiliate of J. P. Marsh Corporation

Dept. D, Skokie, Ill.

For more information about products advertised on this page use Information Center, page 22.

Texas Cooling--

(Concluded from Page 1, Col. 2) of its products, is the first plant of its type in Texas to be completely air conditioned. It has a 850-ton system.

Speaking before the Tyler Chamber of Commerce, Bynum revealed that about 130,000 Texas residents currently have year-round home comfort. They live in 35,000 completely air conditioned homes, with approximately another 10,000 central home installations to be added this year.

With regard to the residential market, the Carrier executive pointed out that Texas, although the leader in the field, will by the end of this year have only a 2 1/4% air conditioning saturation of existing homes using central systems.

For the nation as a whole, he added, year-round conditioning is in only about 1 1/3% of the 35 million existing single-family dwellings.

Nationally, the number of central home units to be installed by the industry will be approximately 200,000 this year, he said. This will raise to 500,000 by 1960 and to 1,150,000 in 1965.

"In other words," he added, "this means that within nine years this market will increase over five times."

He reported that Carrier's orders for industrial plant air conditioning in the first half of its fiscal year are more than double the same period last year and already exceed the entire 1955 year.

Looking to the future, the Carrier president said: "I do not think it will be very long before the vast majority of new plants built in Texas will have central system air conditioning installed right along with the walls as a matter of course."

Other sales trends this year in large air conditioning indicate that existing hotels and existing office buildings are showing the sharpest year-to-year gains in usage.

Indicating the importance of this market, he stated that such large installations, including those for plants, will account for about \$600 million of the industry's volume this year, as compared with about \$435 million to be spent for the highly publicized room air conditioners.

From the birth of air conditioning, 54 years ago, Bynum said, the industry has grown to a point where total retail sales this year will be in excess of \$3 billion.

12 Amp. Unit--

(Concluded from Page 1, Col. 5)

That's story on the 12 amp. unit, pieced together from information obtained from various sources of components that made the unit possible.

Main factors in the development of the 12 amp. 1-hp. air conditioner came about through a special motor design furnished by the General Electric Co. motor department, and a special refrigeration compressor developed by Tecumseh Products Co.

Big feature of the 12 amp. unit is that it can operate on a 115-volt electrical circuit. But those connected with its development are of the opinion that it will definitely have to be on a single, separate 115-volt circuit, that will have no other electrical loading on it whatever. However, all former 1-hp.

window units required a 230-volt circuit.

The unit will probably be assembled with a larger condenser and evaporator. It is not expected to provide the same capacity as the standard 1-hp. unit, but will provide more capacity than the standard 3/4-hp. unit.

Some observers feel that it may become a greater substitute for the "standard 3/4" than the 1-hp. unit, if the pricing is right.

O'Callaghan Qualifies

ATLANTA — L. J. (Jim) O'Callaghan, president of a local heating and air conditioning firm, has qualified as a candidate for the House of Representatives from Fulton county.

O'Callaghan is a registered mechanical engineer and a member of the American Society of Heating & Air-Conditioning Engineers.

Senate OK's Bill To Let Car Dealers Sue Auto Mfrs. for Lack of 'Good Faith'

WASHINGTON, D. C.—The Senate passed 75 to 1 a toned-down bill guaranteeing auto dealers the right to sue car makers for failing to carry out franchise contracts in "good faith."

Sole vote lodged against the bill came from Senator Potter (R. Mich.).

Passage came after Senator O'Mahoney (D. Wyo.), sponsor of the measure, accepted amendments proposed by Republican Senators Case of New Jersey and Bricker of Ohio that would give car manufacturers certain safeguards not provided in the original bill.

One amendment would require the auto dealer also to act in good faith in carrying out

his franchise contract. The original bill required good faith action only by the maker.

A second amendment would let the manufacturer use as a defense, in a suit brought by a dealer, the dealer's own alleged failure to act in "good faith."

A third change approved by the Senate would allow a dealer to collect damages from the car maker only to the extent of those he actually sustained, as decided by the courts.

Firm Chartered

SHREVEPORT, La.—Comfort Heating & Air Conditioning, Inc. here has been granted a charter by Secretary of State Wade Martin to deal in heating and air conditioning equipment.



ROYAL-AIRE a distinctive conditioner featuring UNARCO "pump-down" control system

It is doubtful that any air conditioner can match the efficiency and beauty of the UNARCO ROYAL-AIRE. This all-new conditioner provides "just right" cooling comfort, adding distinction to any setting.

Oversize cooling coils... accessible, hermetic motor-compressor units... and the exclusive UNARCO "pump-down" control system, which prevents compressor damage... are but a few outstanding features of the ROYAL-AIRE line.

Available in five capacities (3 to 15-ton) the ROYAL-AIRE is *balance-engineered!* This insures

full cooling capacities and quiet operation under all conditions, producing a pleasurable climate and atmosphere for any size room.

The ROYAL-AIRE is eminently suited to comfort-cool dining rooms, taverns, drug stores, clothing stores, and offices... to cool wherever the *ultimate* in efficiency and long life is desired. Address the Air Conditioning Division for descriptive literature.

Union Asbestos & Rubber Company
332 So. Michigan Ave., Chicago 4, Ill.



Ask about Dyna-Pac featuring both economy and efficient long life. Another packaged unit by UNARCO (R), also pre-wired and pre-piped for easy installation. 2-, 3-, 5-ton models, water- or air-cooled!

ASPIR-JET SPRAY NOZZLES RAISE TOWER EFFICIENCY

The swirling, atomizing action of the water as it goes through the Aspir-Jet means more effective heat transfer and higher efficiency from any spray-filled cooling tower. Pressure as low as 1/2 pound gives effective water break-up and distribution. Formed of butyrate plastic, Aspir-Jets will not corrode.



* Available through Refrigeration and Air Conditioning Wholesalers.

Manufacturers & Refrigeration Wholesalers: if you are not now using or stocking this outstanding new product, wire or write

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